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Textile World

JANUARY 1940

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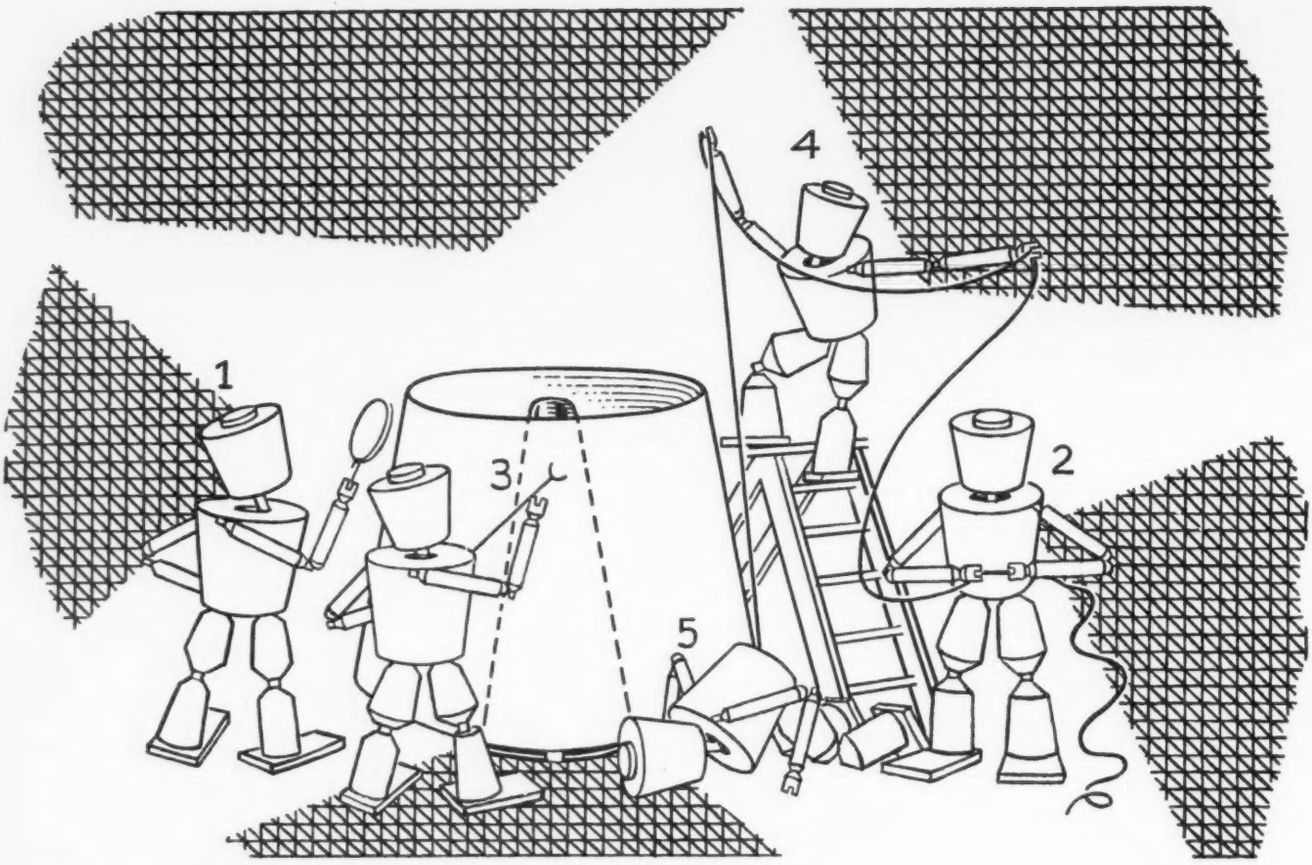

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TEXTILE WORLD

DOUGLAS G. WOOLF, Editor

An Inside Tip on a Red-Hot Investment

THIS IS A STORY about a young man. Graduate of a textile school, he got a job a few years ago as assistant technician in the laboratory of a textile mill at $110 a month. He was a bright young man, and he soon acquired more and more responsibility both in the laboratory and in the operating end, and now is doing quite an important job. His employers like him, and feel they have a "comer" in him—and praise him to his friends and relatives.

But the young man is still making $110 a month. He has a wife and a new baby, and finds it difficult to get along—and impossible, financially, even to lunch with the men in the mill with whom he is thrown into contact, and who would be delighted to have him join them.

He is not much of a one for talking about himself, so he probably will continue *not* to ask for a raise. Either he'll become permanently discouraged, and sink to doing a routine job—or some other mill will recognize his possibilities and take him on at a living wage. In the first case, he will be the loser; in the second case, his present employer will be the loser. In either event, someone is going to lose!

The trouble with this story is that it is not unusual. It is typical of far too many plants and men in the textile industry. The average textile manufacturer—and we can say this with assurance—doesn't give enough thought to the key-men in his organization. He is much more effective in his relations with his operatives than with his overseers, technicians, etc. The reason probably is that employer-employee relations has become one of the major factors in a manufacturing job—but unfortunately it does not necessarily include contact with key personnel.

Also, there still is too much of the idea that the more cheaply one of these key-men can be secured, the better. Take the case mentioned above: If that young man struck for a raise, his employers might consider replacing him with a new man—possibly a more recent graduate—at $110 a month or less. They might then consider that they had made a rather clever switch. Actually, they probably would have made a very stupid move. All the training and growth of the incumbent would have been lost.

DON'T TAKE THAT FIGURE of $110 too seriously. That happens to be a real case, and there are many more right around that figure, but we don't mean to infer that this young man should be satisfied with a raise to $125 or $150. He happens to be worth $250 a month to his mill, if he's worth a cent. And he'd be worth more next year, and still more the year after that, and so on—*if* the mill would encourage him by following him through with voluntary pay increases.

And the mill would make money by the transaction. That's the important point. There's no percentage in bargain-hunting for key-men. We know any number of textile manufacturers who could take a certain number of hundreds or thousands of dollars a year and *invest* them in voluntary increases to key-men in their organizations—and get better return on that investment than on any other thing they could do with the same amount of money. We're not guessing about this; we know.

We want to re-emphasize the word *voluntary*. An unsolicited raise of $5 a week means more than a forced one of $10. Too often, the employer waits until he is held up for a raise, or until his competitor gets the man.

This is not a sentimental piece we are writing. The holidays are over and we feel hard-boiled again. What we said above is just plain economics. It's one of the most important ways in which a textile man can make money. Try it.

Douglas G. Woolf

THE EDITOR SAYS

It Has "Smelled" For a Long, Long Time

THERE IS NO LONGER any need to debate the fine question whether the National Labor Relations Act or the National Labor Relations Board is responsible for the disrepute into which the act and the board have fallen. No board could be a good board which could be guilty of the deeds of commission and omission brought out in the testimony before the House investigating committee. No act could be a good act which could permit the board to be guilty of those deeds.

We stated in these columns a long time ago that it was a lousy act, lousily administered. We arrived at that inelegantly-expressed conclusion, not by sitting at our desk but by getting around the country and seeing the field personnel of the board in action during hearings. We urged manufacturers and others to do the same thing if they wanted to learn what sort of a mess the whole thing was. At long last, the country as a whole is learning these things. Even John L. Lewis is howling for changes in the act—and that's news!

Incidentally, it was a textile mill case which revealed the heights of absurdity which the administration of the act can reach. The Waumbec Mills, of Manchester, N. H., was ordered by the board to pay two years' wages and give employment to two men whom they had never hired. Reason? Because the men were active in union affairs when they applied for jobs in July 1937; therefore, found the board, the company violated the provision of the act which forbids discrimination "in regard to hire."

The fact that the company denied that the men were turned away because of union affiliation is important, but the outstanding feature of the case, we think, is the hard cold fact that there is in existence the type of act, administered by the type of board, which can result in a company being forced to pay two years' back wages to men whom it had never hired.

Just think that over for a while. If that isn't definitely in the direction of the abuses in totalitarian states which make Americans feel so superior, we miss our guess.

But this is only one case. The history of the act and of the board is one long record of unfair administration of an unsound act. The newest member of the board, Dr. William M. Leiserson, cannot be included in this criticism, but Chairman J. Warren Madden, and the other member, Edwin S. Smith—as well as Donald Wakefield Smith, a former member, have been responsible for a disservice to labor which will have its effect for many years to come.

The sooner the act is fumigated so as to prevent such miscarriage of justice, the better. The best form of "fumigation," in our opinion, is the separation of the administrative from the judicial functions of the board. The fact that the Supreme Court finds that Federal Courts have no authority to review the board's election orders is all the argument needed here. In addition to this and other changes in the act, the sooner bureaucrats of the Madden and Smith stamp are removed from public office, the better.

In his testimony before the House Committee Dr. Leiserson said that a certain case, handled by the board, "smelled" . . . . Well, a lot of us have been complaining about the odor for a long, long time.

The Mill Village

WE ARE GLAD to find in a recently published analysis of the mill-village problem the following conclusion:

"Put the village into a separate corporation, charge fair rentals based on fair valuation of the property, and put all of the wages into the pay envelope."

That gets us where we live, as it were.

Back in 1924, we made a survey of the mill-village problem and, in an article entitled "The Problem of Southern Community Activities," by Douglas G. Woolf, in the Annual Number of TEXTILE WORLD (Feb. 7, 1925) arrived at this conclusion:

"There is only one way in which all the innuendoes and implications on both sides can be answered—and this is by the allocation of all wages to the pay envelope—and the charging, on a rational basis, for all community activities."

Four years later, an article entitled "What About the Southern Mill Village?" by Douglas G. Woolf (TEXTILE WORLD, July 13, 1929) quoted Thomas M. Marchant in support of this theory and added:

"The fact that manufacturers like Mr. Marchant are thinking in this direction is significant. The writer knows, from personal contact, that there are many mill men throughout the South who are in utter sympathy with this basic proposition."

A lot of water has gone over the dam since 1925 and since 1929. NRA and the wage-hour law, through their integral and involved focus upon North-South wage differentials, have dramatized the need for just what we preached in 1925: the elimination of southern mill-village costs as a factor in wage comparisons.

More recently, there has been a trend toward the sale of mill-village houses to employees. In a feature article in TEXTILE WORLD, September, 1939 (written by Mildred G. Barnwell), this trend was reported in detail and analyzed. In an editorial note in that same issue, we commented:

"For nearly 20 years we have been pointing out in these columns the seriousness of the burden which a mill-owned village places upon a textile manufacturing company. From time to time, we have urged that company houses be placed upon a pay-their-own-way basis, not only to remove the operating loss but to avoid the criticisms and comparisons which the present system invites. Recent trends have indicated a growing sympathy with this point of view, and in fact a number of manufacturers have taken steps to put their rents more in line with recent costs. Still more recently, actual sales of mill villages to the employees have grown in favor. This can be chalked up as one more indication of textile progress."

We do not believe it practical or possible to sell *all* the mill-owned villages to employees, either now or in the reasonably-near future. We do believe, however, that it is both practical and possible—and definitely desirable—to place *all* those mill-owned villages on a self-sustaining basis, and to put *all* earned income into the pay envelope.

And so, in this case as in others where we have waged a long but ultimately successful campaign, we repeat our 15-year-old suggestion:

Villages and other community activities should be placed upon a strictly economic basis, such activities to be self-supporting and the employees' pay envelopes to be increased in proportion.

Just as we have reiterated in our espousal of coordination of textile trade-association activities, so do we repeat in the case of southern mill-villages: Eventually; why not now?

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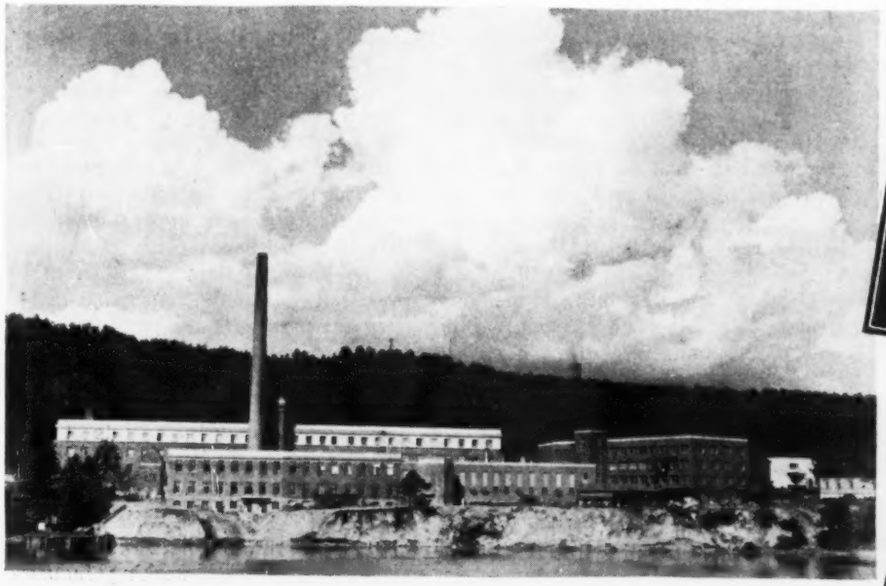

Important weapons in Finland's courageous fight for existence are her modern industrial plants. Pictured above is Finland's newest textile plant—the yarn mill of Suomen Trikootehdas, in Tampere. (Shown on map.) Equipment for the mill, which commenced operations at the end of 1938, was furnished by Saco-Lowell Shops. At right is view of slubbers. Firm also runs largest knitting mill in Finland. Photos courtesy of Saco-Lowell.

It Takes a Brave Soul This Year

To forecast next year, but apparently courage is more plentiful than wisdom

IF ANYBODY ASKED our advice on this subject, we'd tell them: "Don't stick your neck out with a business prediction for 1940. For every unknown that there is in a 'normal' year, there are at least six right now. Play with some safe little pastime like the numbers game, but leave business forecasts alone." . . . However no one requested our advice, so here is at least as good a crop as usual. . . . And we find we didn't even follow our *own* advice, as our "opinion" is among those present.

Even if we didn't think a business paper editor's opinion was pretty good, we wouldn't admit it. So we start with the pronouncements of a group of our colleagues in the McGraw-Hill Publishing Co., whose papers deal with important zones of business all of which will help to determine the textile picture for 1940. Then we conclude, on the opposite page, with statements on the textile outlook from members of our own staff.

What we wouldn't give for a copy of the January 1941 issue of TEXTILE WORLD!—*Editor.*

What McGraw-Hill Editors Think

GENERAL BUSINESS (By J. A. Livingston, staff economist, *Business Week*)—From the standpoint of steady profits, payrolls, and purchasing power during 1940 as a whole, a slump during the first half would be much more beneficial than during the last half. If a decline is long delayed, it would mean that business would have been accumulating inventories over a great many months. Then, the readjustment would be painful. On the other hand, if industrial activity tapers off, and the readjustment is completed early, then 1940 may wind up with a curve of rising business and good profits. Thus, one of the best omens for business for next year would seem to be a decline early in the year—paradoxical as that may sound.

MANUFACTURING INDUSTRIES (By L. C. Morrow, editor, *Factory Management and Maintenance*)—The manufacturing industries will be busy in 1940. The present high rate of productivity is due primarily to increased domestic activity and should continue until the middle of the year, with slight recession during the first month or six weeks to offset inventory excesses indulged in during the last half of 1939.

COAL INDUSTRY (By Sydney A. Hale, editor, *Coal Age*)—Mirroring the upturn in general business conditions, the coal-mining industry staged a healthy recovery in production in 1939. Bituminous tonnage for the first eleven months was 14% ahead of output for the corresponding period in 1938 and anthracite showed a 12% gain. With a continuance of favorable business trends and a clear labor sky, further gains both in volume and in profit margins should be realized by low-cost producers in 1940.

INDUSTRIAL POWER (By Philip W. Swain, editor, *Power*)—In spite of war—in spite of everything—1939 was a year of outstanding technical achievements, particularly in the field of industrial power applications: steam generation, electricity, pumping, refrigeration, diesel engines, gas engines, air conditioning. This scientific progress is a case of "have your cake and eat it too." The achievements of 1939 will deliver new comforts and lower costs to the entire population in 1940. Meanwhile, these new machines and methods will find broader application, while pioneering engineers plan the next forward step.

AVIATION (By S. Paul Johnston, editor, *Aviation*)—Military demand, both at home and abroad, has given the U. S. aviation industry the biggest backlog in its history. Orders for upwards of $500,000,000 of military aircraft and accessories are now on the books. . . . In spite of intensive military developments, commercial aviation is going forward rapidly. The air lines have just completed their biggest year with an outstanding safety record, and are looking forward to at least a 30% increase in business during 1940. Most domestic air lines are expecting deliveries on new equipment by spring and, in spite of the war, plans are being made for expansion of transoceanic services this year.

CONSTRUCTION (By Waldo G. Bowman, editor, *Engineering News-Record*)—A construction volume of nearly seven billion dollars in 1939 exceeded 1938 by 8%, with new high records being established in the fields of sewage disposal, waterworks and public buildings. Predicting what volume the coming year may produce is even more precarious than usual but, weighing all factors as realistically as possible, a decline of about 2% from 1939 levels is indicated. Reason: a falling off in public construction as Federal budget strings are pulled tighter. Substantial improvement in private construction, war or no war, should offset much of the public construction loss, without however producing a net gain for the year.

CHEMICAL INDUSTRY (By S. D. Kirkpatrick, editor, *Chemical & Metallurgical Engineering*)—Chemical industry in the United States is being benefited materially by the European war. An immediate demand, both foreign and domestic, was created for American chemicals to replace supplies that formerly came from Germany. Production schedules were stepped up in the last quarter of 1939 so that they closely approximated the industry's all-time records established in the second quarter of 1937. Since practically all of the consuming industries enter the New Year on a relatively high plane of activity and since foreign business is certain to increase, the chemical industry for the first quarter of 1940 should operate at least 20% above the rate maintained throughout the first quarter of 1939.

METAL-WORKING INDUSTRY (By Burnham Finney, editor, *American Machinist*)—The metal-working industry goes into 1940 flush with orders, both domestic and foreign. Many companies, particularly machine tool builders, are booked months ahead and in some instances a year or longer. Sales are still

impressively large. Regardless of the war, operations should continue at a high rate for many months.

METAL MINING (By H. C. Parmelee, editor, *Engineering and Mining Journal*)—Outlook for the domestic metal-mining industry in 1940 is favorable, resulting from improvement in general business conditions, better earnings, heavy expenditures for armament, and increased foreign trade. Grave uncertainties confronting the industry are the duration of war in Europe and the political trend at home.

The Textile Outlook, Specifically

THE RE-APPEARANCE of possibilities for profits was the big news in the textile industry during 1939, and eclipsed in importance even the establishment of a record high in mill activity. Moreover, the return of profits occurred during the last part of the year, and consequently is the dominating and encouraging motive for 1940, according to Douglas G. Woolf, editor of TEXTILE WORLD.

Textile mill activity during the year approximated 30% higher than 1938, and exceeded even that of 1937. It was about 35% above that of a so-called "normal" year (1923-25 average.)

The above applies to the industry as a whole. Considering now the individual branches, 1939 cotton consumption increased by approximately 25% over 1938; wool consumption advanced by more than 50%; while final silk consumption figures show a 7% decrease. In synthetics, use of filament rayon increased by about 30%, while rayon staple consumption registered the amazing increase of nearly 100%.

First reaction to the news of this sharp textile improvement undoubtedly will be that it was a war-baby. That was not essentially true of the mill activity. Although the active demand which set in at the beginning of the war Sept. 1 naturally resulted in increased mill schedules, the rate of mill activity for the first eight months of 1939, which was quite without benefit of war, had already been sharply above that for the corresponding period of 1938.

However, what the war *did* bring to textiles was the new chance for a profit, referred to above. Most of the textile business taken during the first eight months of the year was unprofitable, while that booked during the last part of the year showed a good, but not an inflated, profit.

For 1940, it is unlikely that production will run as high as in 1939. It probably should come in between the rates of 1938 and 1939. However, the prospect is for a more profitable basis during the year as a whole, than during 1939 as a whole, and consequently the 1940 textile activity should promise greater expenditure of mill funds for new equipment, for improved plant lay-out, and for other forms of modernization.

FOR THE INDIVIDUAL BRANCHES of the industry, TEXTILE WORLD staff surveys indicate the following outlook:

Cotton: Very definitely, easing off of mill activity should be expected some time during the first half of the year. Students of the market feel this easing off should take place during the first quarter to allow absorption of obvious over-production of the last quarter of 1939, and to prevent bearish effect of inventory later on. However, those familiar with past practices of the industry anticipate at least three more months of operation at full two-shift capacity or better. If curtailment were started in the first quarter, the second quarter would undoubtedly show improvement; if curtailment is delayed, the reverse should be true. Beyond the first half, election uncertainties, the new cotton crop and other unknown factors will probably induce restraint. The war factor has been left out of the above, but it must be included in the final reckoning as an unknown influence which may induce boom or depression depending upon its developments.

Wool: Wool prices appear to have leveled off at a point which will probably hold through a month or two. As the war progresses, the level should trend upward, due to increased military usage. Wool fabric prices look to be firm through the first quarter, based on wool and on the higher wage cost which must be figured in after February. The price advance so far has not been enough to lift all-wool fabrics out of the popular clothing price ranges. When the former $17.50 suit goes over $25.00, it seems likely that more will be heard from the rising ranks of synthetic wool-substitute fibers. In summer clothing, the latter should make more than a splash next season, in competition with the relatively much higher priced tropical worsted.

Silk: The wide swings of the raw material make this market difficult to forecast. The already extreme rise makes a reaction probable, especially with Nylon in the offing to take care of hosiery mills, and weavers already concentrating on synthetics. The Japanese situation is under the influence of uncertain treaty rights after the end of January. 1940 will doubtless settle the uncertain fate of silk in the American market.

Rayon: Large increases in production in the last quarter of 1939 are being carried into 1940, and consumption gives some hope of supporting them. Large producers are entering on carefully devised promotion programs which promise to give further impetus to the growth of rayon's prestige to the consumer. The conservative handling of price advances and month-to-month selling to check speculation are producing a good market for the weaver and converter which should mean further gains in volume of rayon goods.

Knit Goods: Hosiery has been deeply embarrassed by the high price of raw silk. Previous advances in hosiery prices are inadequate, but feasibility of further raising of the popular volume levels is doubted, thus creating a dilemma. Nylon hosiery will be the event of April and may be the market leader thereafter, unless silk returns to a reasonable competitive level in price. Full-fashioned volume in 1940 seems unlikely to touch the record highs of 1939. . . . Underwear looks to a good year in 1940 with further gains in return to seasonal weights and styles, with consequent increases in unit sales. . . . Outerwear will probably continue its emphasis on variety of product, with sweater mills using leather, suede, woven-fabric or what-not in the make-up of their garments, and with bathing suit mills using woven goods, both elastic and non-elastic, as well as knit fabric in their output. All this is in the direction of sustaining consumer demand and points to a 1940 volume at least on a par with that of 1939.

Finishing: Cotton finishing activity will follow that of the weaving industry, and finishers are optimistic as to business for the first part of the year. Special finishes of various types are becoming more and more important and offer better profit possibilities, which unfortunately are not being realized by many finishers. There is still further plant liquidation to come in the cotton finishing industry, observers believe. . . . Rayon-silk finishing industry has now shrunk to a size where it appears that most of the remaining plants have a chance to survive. They are handling fabrics which the cotton finishers are not attempting.

NYLON—a Triumph of Research

By DON WHARTON

Full-fashioned hosiery field offers first big market for new synthetic fiber

BEFORE THE NEW YEAR IS OUT, millions of American women will be wearing hosiery made from coal, water, and air. Du Pont announced Nylon, the wonder product, late in 1938 and demonstrated it at the world's fairs of 1939. The year 1940 finds early laboratory and experimental stages over, hosiery mills in production, and department stores preparing for the day, probably in April, when simultaneously from Maine to California Nylon hosiery goes on sale.

Industrial chemists speak of Nylon as one of the most important chemical developments of the last decade. Nylon is the raw material for a textile fiber stronger and more elastic than silk, wool, linen, cotton, or rayon. Hosiery is merely an obvious place to begin to use it. Many textile products other than hosiery need to be light in weight, strong, elastic, non-absorbent, non-deformable, non-shrinkable, self-ironing. Nylon will make stronger and lighter parachutes—both the fabrics and the shrouds. It can be made into lace. Also into certain types of knit goods, as women's underwear; woven dress goods; upholstery material; linings for men's suits; possibly even rugs and carpets. Nylon sewing thread is already being offered.

But not all Nylons are textiles. Nylon is on the market to replace gut for fishing leaders and for surgical sutures. Nylon can be made into filaments as fine as a spider's web, but it can also be produced in sheet form and as bars or rods from the diameter of a bristle to the diameter of a man's arm. (Toothbrushes with Nylon bristles have been available for over a year.) Or Nylon can be used as an enamel, so tough that copper wires coated with it will break before the coating cracks, which means that Nylon is destined to be used for a wide variety of purposes.

"Nylon," chemists explain, is a word like "steel"; it covers a whole family of products, which vary according to the processing and according to the raw materials used, as steel is variously treated and alloyed to make hairsprings for watches, surgeon's scalpels, or bridge girders.

To the scientific mind, the exciting thing about Nylon is that it is an early fruit of profound studies of the molecule. The first was a synthetic rubber-like material known as Neoprene. Building upon the same discoveries in pure science, chemists may emerge with further products, just as important but quite different.

This is pure speculation. But Nylon yarn is a fact. The first plant is expected to turn out 4,600,000 lb. of Nylon a year. It won't all be used for yarn, but most of it will, and most of that yarn will go into hosiery. To that extent, it will replace silk, hitherto unchallenged in quality hose. Obviously, 4,000,000 lb. or so of Nylon yarn will not immediately take over a market which last year used 45,000,000 lb. of silk. But it may be the cloud no bigger than a man's hand, and the Japanese are watching anxiously. Hosiery is silk's one last remaining stronghold. We buy four-fifths of all the silk used in the world, and four-fifths of what we buy is knitted into stockings. Rayon was insignificant once, too. We used 2,000,000 lb. in 1911; 10,000,000 lb. in 1919; in 1939, 330,000,000 lb.—and silk, long the queen of woven fabrics, has almost vanished from the looms.

Nylon's first big field is women's full-fashioned hosiery. To date rayon has not been considered satisfactory for this purpose. Silk hosiery sales in this country have increased 9,000,000 dozen pairs in the last five years alone. There has been a craze for more and more sheerness, which has meant less wear. American women now buy 43,000,000 dozen pairs of silk stockings a year. This is the great market at which Du Pont is aiming. The Du Ponts deliberately avoid making any definite claims, but independent observers believe that Nylon stockings will wear at least twice as long as silk stockings. Will women

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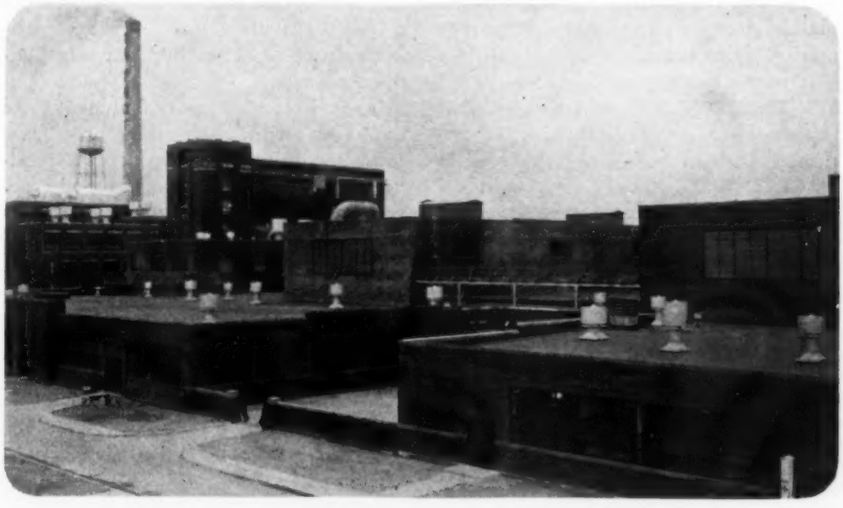
In every reader test we make on TEXTILE WORLD now-a-days, we find that one of the top subjects in interest is Nylon. We have kept up with all the strictly textile developments in Nylon, but our readers still ask for more. Consequently we decided to present a completely outside viewpoint. The accompanying article is written by a feature writer who approached the subject not from the standpoint of the textile man but from that of general public interest in it. . . . Don Wharton, of Smithfield, N. C., graduated from Davidson College, N. C., with honors. He is a well-known magazine writer and editor, having been associated with *Outlook, Independent, The New Yorker,* and *Scribner's,* and having contributed articles to several other magazines. His book, The Roosevelt Omnibus, appeared in 1934.

buy fewer stockings when they last longer—and spend the savings for something else? Or will Nylon broaden the market, putting fine hosiery within the reach of more women?

THE STORY of Nylon dates back to a research program fathered by Dr. Charles M. A. Stine, who this January receives the coveted Perkin Medal, annual award for distinguished contribution in the field of applied chemistry. With the Du Ponts since 1907, Dr. Stine helped solve our dye problem during the World War, worked on explosives, and with his own hands manufactured the first TNT for the Navy. By 1924 he was Du Pont's chemical director. Early in 1928, he persuaded the company to broaden its policy and set aside large sums for fundamental research, as contrasted with research on immediately practical problems. "Patient money," someone in the chemical industry called it, because it looked for no prompt return.



Part of new Nylon plant at Seaford, Del. Front cover of this issue presents airplane view of this plant. Photo at left shows twisting department

One of the Du Pont scientists working on this project was the late Dr. Wallace Carothers. After this study had been under way for about two years, a chemist in Carother's group pulled a sample of molten material from a still and noticed that it could be drawn out like a fiber of silk. And, extremely important, that the fiber after cooling could be stretched again to several times its original length.

But Nylon was not born that day. It was only conceived. Hundreds of compounds were prepared; some were too weak, some insufficiently elastic, others softened at quite low temperatures, others were too sensitive to water. Presently fibers which appeared definitely promising were spun by hand from one of the compounds. Then came the day when a compound was formed into an encouragingly good filament by squirting it through a hypodermic needle. More searching, more experiments with various processes and formulas—and finally U. S. Patents Nos. 2,130,947 and 2,130,948, covering Nylon production.

Even the layman can catch some glimpse of the fundamental chemistry here newly applied. The atom is the smallest possible subdivision of a basic element. Atoms combine to form molecules, as two atoms of hydrogen and one of oxygen to form a molecule of water. The three-atom molecule of water is very small. Chemists thought it ought to be possible to coax some of the abundant elements to form giant molecules, joining hands in long chains. Such long molecules occur in nature. The rubber molecule is one of the longest chains of atoms known to the chemist. After much pure research into the nature of the molecule, Du Pont chemists set out to synthesize a substance which should have a molecule approaching the length of the rubber molecule, and having somewhat the same structure. Presumably it then would have some of rubber's qualities. The result was Neoprene, Du Pont's chemical rubber. Out of this fundamental research came also Nylon, very different, but likewise a super polymer, long enough to be seen in a microscope (about 1/100,000 in.), but too narrow to be visible. Nylon contains the same elements as silk—carbon, hydrogen, oxygen, and nitrogen, and arranged in somewhat the same way. These are likewise the chemical elements of coal, water, and air. It is importantly different from rayon, which contains no nitrogen.

But between bituminous coal and Nylon hosiery are many intricate processes. One particular type of Nylon which appears promising for the manufacture of textile yarns can be made from a dibasic acid (derivable from phenol which is commonly made from bituminous coal) and a diamine (in the manufacture of which phenol and ammonia are used—ammonia being a synthesis of hydrogen from water and nitrogen from air). Other raw materials could be used; coal happens to be abundant and cheap. Nylon is made by heating the proper intermediates—a dibasic acid and a diamine, for example—at a temperature somewhere between 400° and 600° F. When that is done—and here you have the secret of Nylon—the molecules begin to hook themselves together in long chains.

Nylon is first formed in icy-white ribbons of any width and thickness that happens to be convenient for handling in the factory. If intended for use as a textile fiber, these ribbons are broken into little chips. The chips are melted, and the water-clear liquid looking like thick glycerine, is squirted through tiny nozzles to form cobwebby filaments. The filaments solidify in the air, and are wound on spools. Each filament, if there were a microscope powerful enough to peer into its structure, would be seen to be made up of these long chain-like molecules, arranged in a criss-crossed, helter-skelter fashion.

Next, the filaments are stretched. The stretching aligns the molecular chains into parallel formation, brings them so close together as to create powerful inter-molecular attraction—the force that holds all substances together, tenuously as in water, or firmly as in iron. This is just the hard or scientific way of saying that the stretching makes Nylon stronger.

From the stretching process onward, the winding, twisting, knitting or weaving, and dyeing of Nylon differ in details only from the handling of other textile fibers.

YET THERE IS one detail of commercial importance. Silk stockings are dyed before they are slipped onto metal forms where they are dried with heat—an operation called boarding. Nylon stockings are "boarded" before they are dyed. Otherwise the hot dye would set the Nylon, permanently preserving every wrinkle, fold, or bulge. This preboarding of Nylon stockings is done at a higher temperature than is used in the boarding of silk stockings—212 to 240° F., with lots of live steam. The result is that the Nylon stocking is per-

manently shaped; can never bag nor wrinkle; and after washing and drying, looks as if it had just come from the store. It "irons itself" and whatever shape it was given in the setting process it will retain unless and until it is exposed to a greater heat than that at which it was set.

The commercial importance of this is that Du Pont has patents for this preboarding or setting process, as well as patents on Nylon and hosiery made from Nylon yarn. The company is deliberating whether to use these patents to set up a system of licensing hosiery mills, but as yet has reached no final decision.

DU PONT'S PUBLICITY, comparing in acumen with its laboratory research, has pursued a policy of understatement in order to disarm the spreading and ridiculous rumors that the stockings are runproof, that two pairs will last a woman a year, that the threads are impervious to razor blade and nail file, and that you can't burn a hole in one with a cigarette.

For the same weight, Nylon hose look sheerer than silk stockings. But they are not runproof. Barbed wire will start runs in Nylon as in silk. Nylon hosiery is susceptible to minor snags, but the punctures are less likely to develop into runs. Nylon hose holds shape better than silk, can be washed in hot water, dries in ten minutes. As the manufacturers gain experience, even greater life may result. Nylon hosiery comes in all colors and shades, has no unusual tendency to fade, will not blaze when exposed to a flame (but will melt), and is water and stain resistant. Some hypersensitive women report that Nylon hose have a slightly colder feeling than silk stockings and lack silk's clinging touch.

Du Pont is determined to avoid the errors of rayon, which was first used in products to which it was not adapted and got branded as a cheap substitute for silk. The word "rayon" wasn't put on all rayon products until the law compelled it. The word "Nylon" will be plainly stamped on or knitted into every pair of Nylon hosiery.

THE STOCKINGS first sold will be what women know as an extra-sheer three-thread, and the prices are expected to be $1.15, $1.25, and $1.35 a pair, depending upon the gage. These prices intentionally correspond to the prices of fine silk stockings, so that Nylon will be established as a superior product. Trade-wise observers assume prices will come down when Nylon hosiery wins acceptance and as volume grows.

Now that silk has skyrocketed in price, Nylon yarn, in qualities used for fine hosiery, is about 15% cheaper than silk. Nylon hosiery yarn prepared for knitting ranges in price from $3.25 to $4.55 per lb., depending upon thread size. Raw silk is currently quoted at around $3.50 per lb. Silk yarn prepared for knitting costs the hosiery manufacturer today between $3.75 and $5 per lb.

Du Pont has spent $11,000,000 on Nylon plants—one in West Virginia which partially processes the raw materials, and one in Delaware which turns out the finished Nylon. They employ about 850 men. This team of plants can turn out about 4,600,000 lb. a year. Another unit, perhaps doubling present capacity, may be announced soon.

The Du Ponts don't feel they are gambling with their millions. They think the future is assured for a product that has so many desirable characteristics and which provides new jobs for American workmen.

Nylon Plant in Production

PRODUCTION OF NYLON yarn in the first unit of the new plant of E. I. du Pont de Nemours & Co., at Seaford, Del., started on Dec. 15, when one spinning machine was put into operation. Operations will proceed gradually, gaining speed as experience develops with equipment and personnel. The plant is the first of its kind ever built, designed to fit an operation never before undertaken. The original unit is a single building, 1052 x 272 ft. Slightly irregular in shape, it is essentially an elongated single-story rectangle, extending from a six-floor tower at one end. The roof is flat, broken by terrace-like setbacks at different elevations. To the south of the structure is a large power plant and facing it is a two-story administrative office building.

The intermediates from which Nylon is produced are made in the Du Pont plant at Belle, W. Va. and are shipped to Seaford. The Nylon manufacturing process begins in the tower. On the top level are huge insulated vessels of stainless steel. Below are autoclaves, extending through two floors of the building. Each level is devoted to a separate phase of the operation. On one of the lower levels of the tower, spinning units transform the Nylon flakes into filaments. From the top, these units resemble circular flour sifters, shaped to fit into the apparatus. They are kept filled with the Nylon flakes by mobile hoppers, traveling along an overhead rail. Here the material is melted and then pumped under pressure through spinnerets.

On the level below, the filaments appear as they become solid upon reaching the air. They then pass down a narrow pipe-like chimney to the floor below, where they are wound on bobbins. Each step of the process is controlled by means of electrical instruments. From this point the yarn begins its progression through the various processing operations.

The length of the plant is partitioned laterally into a series of long rooms, housing rows of textile machinery. After a pre-twisting to facilitate handling, the yarn is drawn or stretched to impart strength and elasticity. The yarn is then twisted and given a size and lubricant in preparation for knitting and weaving. After final inspection it is packaged in skeins, cones, etc.

Longitudinally, the plant is bisected by a corridor separating the manufacturing from the service section. The latter provides quarters for store rooms, machine shops, a control laboratory, supervisory offices, locker rooms, and a cafeteria.

Constant temperature and relative humidity are maintained throughout the plant. The air conditioning units are housed in special rooms above the roof. Refrigeration equipment is located in the power plant.

The plant will produce polymer as well as yarn. Some of the polymer will be made into brush bristles and surgical sutures, among other articles, by the Du Pont Plastics Department plant, at Arlington, N. J. The plant, when in complete operation, will produce approximately 4,000,000 lb. of Nylon yarn a year. About 850 workers will be employed. First delivery to hosiery mills was made early this month.

Processing-Tax Headache Again?

Under "certificate plan" alias, Wallace threatens encore of tax nobody wants

By BLAINE STUBBLEFIELD
Washington Office, TEXTILE WORLD

IN PRESIDENT ROOSEVELT'S HEYDAYS of 1933 a processing tax was enacted covering several commodities including tobacco, corn, hogs, rice, cotton. The purpose of the tax was to finance the AAA farm benefit program. The rate on cotton was 4.2c. per lb. If the resulting muddle was only half as bad as manufacturers claimed, it was much too bad. The Schechter "sick chicken" decision on NRA brought a flood of injunctions against the tax. In June, 1936, the Supreme Court invalidated the act on the ground that the taxing power could not be used to regulate agricultural production. Then the Revenue Act of 1936 authorized "windfall" refunds under certain conditions. Internal Revenue Bureau had collected $902,000,000 under the tax. It expected to pay back about 10% of that under the refund order. Rooms full of lawyers and clerks in the bureau's swank building are working on it to this day and they're not through yet. One of several things that put them in a tailspin was the fact that many people who paid the tax to the Government immediately collected it from somebody else, so it wasn't quite right to refund the money unless the man who actually paid could be found—which he couldn't.

That's history and it's news because some Administration officials, including the Secretary of Agriculture, want to repeat the first act of it. This Congress will get the proposal under a "certificate" title—a name that will smell sweeter to the Court. Others of the administration, including the Secretary of the Treasury, who called it a "recessive tax on consumers," want none of it.

TEXTILE WORLD forecast in December approximately what would show up in the line of process tax plans, but some more background is in order, now that Mr. Wallace is actually on the stump for his program.

Since invalidation of the processing tax, the AAA farm benefit payments have been financed with appropriations from the Treasury. These huge sums go for soil conservation, for parity payments, and 30% of tariff revenues in a continuing appropriation for promotion of consumption and exports. In an election year it is unthinkable to curtail benefits to farmers. It is nearly as bad to suggest more taxes on the general public. But important money must be found to expand national defense some more and still pour subsidy on the land. Thus hard pressed, the Administration puts new legal clothes on this process tax, the memory of which is an ogre to manufacturers, and walks it up Capitol Hill again. Guessing what will happen to it would be futile at this time, but the farmer usually wins.

Secretary Wallace has not yet issued a statement of his tax plan. His first proposal will probably be a re-write of previous bills, plus current ideas, which will go to Congress as a new bill. Meanwhile no less an authority than Dr. J. B. Hutson, assistant AAA administrator and exponent of the new plan, outlined it in a carefully prepared speech before the Farm Bureau Federation at Chicago.

This is the gist of Dr. Hutson's outline: The Department of Agriculture would issue certificates representing the entire estimated domestic consumption of the commodity in question—say cotton—for the market year. Each grower would be apportioned certificates representing his share, calculated on his acreage allotment, of the total consumption. The grower's eligibility would depend on his compliance with the AAA acreage allotment. If his certificates were withheld for non-compliance, he could still get them at the year-end on the basis of actual marketings and by agreement to comply the following year.

Now, the producer gets his benefit, or subsidy, money by selling his certificates to a processor or importer of cotton. Importers being few, this is a manufacturer's proposition. The grower doesn't have to hunt up some processor and make a deal with him; there'll be certificate pools—banks dealing in this kind of money. Of course the processor doesn't *want* to buy any certificates; he *has* to buy them as a sort of license to do business. The person making the *first sale* of articles manufactured from cotton would be required to purchase certificates at a fixed price, in proportion to the amount of cotton used in the articles. At the end of the year, these persons would file reports of business done and turn in their certificates, which would be canceled.

No certificates would be required in connection with articles exported. This means that the certificate plan would be a two-price plan in relation to export. Cotton goods would export at world prices but would sell at home at world prices plus certificate costs.

Wallace claims, as advantages of his plan, that it would (1) provide a continuing source of revenue independent of Congressional action each year; (2) protect farming outside the Federal budget, just as other industries are protected by import tariffs; (3) relate the source of revenue directly to the commodity included in the program. He admits awareness of two main disadvantages, though he answers them for himself: (1) that the certificates would constitute a tax on consumption; (2) that the plan would be class legislation, taxing Peter to help Paul.

President Roosevelt, as he has in the past, still urges that extra revenues be raised to pay farm benefits, but as this is written he has not come out for the certificate plan. Farmers are afraid a tax would be deducted from their produce receipts. Consumers are afraid *they* will pay it. Nobody wants it, but there may be no other way out.

GOOD NEWS!

Enough opposition is in sight in Congress to insure the defeat of Secretary Wallace's Certificate Plan. This is the good news which comes to us from Paul Wooton, our Washington correspondent, just before we go to press. He adds that the disposition in Congress seems to be to appropriate out of general funds about half the amount for farm relief which was proposed to be raised by the certificate plan—and that probably no money would be raised by the latter plan. This does not reflect opposition on the part of the Administration as a whole, despite Secretary Morgenthau's attitude. On the contrary, there is strong support within the Administration for the certificate plan. However it is recognized that it is politically inexpedient to put in any consumption tax on wheat and cotton, which burdens the poor disproportionately, during an election year. Congress, our Washington office reports, is in no mood to approve any such plan.

—Editor.

Essie Lane Teaches Spinning

There is one best way, she advises all her pupils at Bibb Mfg. Co. plant

By ANNIE MOORE DAUGHTRY
Personnel Director, Bibb Mfg. Co.
Macon, Ga.

"THERE IS ONLY ONE right way of doing things," according to Mrs. Essie Lane, who teaches newcomers and deficient operatives how to spin cotton yarn in the huge Columbus, Ga., plant of Bibb Mfg. Co. This soft-voiced little expert is in charge of teaching workers in the spinning department, which employs over 600 to operate its 125,000 spindles.

Prior to the advent of Mrs. Lane's teaching career, Assistant-Superintendent Henderson had been disturbed over the fact that there were "deficient" spinners who just could not seem to make the grade. He believed that all that these spinners needed was a little teaching and guiding, along with personal encouragement, to bring them up to standard. Essie, as everyone calls Mrs. Lane, had noticed this too, so she told the officials that she would like to take a fling at teaching spinning. She was given the job; and the mill's faith in her ability has been more than justified.

Essie Lane has been with Bibb continuously since 1929, is now 30 years old, and stands 5 ft. 3½ in. She is quiet, unassuming and gentle, and her poise is unruffled whether talking with the company's vice-president, an audience of 300, or a deficient operative whom she is helping to higher standards of work. She has a sound philosophy of life and a penetrating understanding, and her teaching assignment realizes an ambition of long standing.

Essie's entire philosophy of teaching might be based around the phrase "one best way." She believes that there is one best way to stand, one best way to put up ends, and one best way to creel rovings. If the job is done properly there will be a minimum of fatigue, a maximum of efficiency and a maximum of a job satisfaction.

A new employee coming into the spinning department is interviewed by the overseer so as to put their relations on a personal basis from the beginning. He then turns the learner over to the shift foreman who shows her the frames, and in turn introduces her to Essie. From then on, the learner has a real friend in Essie.

Mrs. Lane begins her first lesson by naming and showing the parts of the spinning frame, then having her pupil repeat them back to her. "I do this," she says, "because in a mill it is hard for a person unaccustomed to the noise to understand. Often they agree and nod their heads rather than say they do not understand."

The next step is to teach the spinner the proper way to stand. New pupils are told to stand out in the aisle and bend from the waist rather than the old method of standing too near the frame and squatting.

The third lesson is devoted to putting up ends. The spinner is taught to take the end between thumb and forefinger and "lay" it into the end coming from the roller in such a way that the splice leaves no defect in the yarn, instead of "sticking" it up in the old and inefficient manner.

During another lesson, Essie teaches the best method of creeling rovings, which is to set the new bobbin of roving in the frame before the old one is used up, being sure to break off the old roving with a correct length of at least one inch to prevent doubling.

Together with the overseer, she has made up a progress record of just what might be expected in weekly progress from her learners. Under her tutoring, learners become efficient spinners in an average of four months. She also keeps a ledger with an individual page devoted to the record of each pupil. A page in Essie's book might look something like Fig. 1. It will be noted that Mary Jones, spinner, showed a continuous improvement in number of sides run, percentage of the job allotment completed, condition of cleaning, and amount of money lost by the mill through employee's deficiency. This chart begins seven weeks after a new spinner is employed. The first week is spent in learning to put up ends, and the next six weeks is spent as a roller picker.

Following are some general suggestions which Essie gives her spinning pupils:

1. Be happy and in good spirit, because when you are happy your work runs better.

2. Keep your broken ends up. When you flag an end, be sure something is the matter with it.

3. Be fast, but not too fast. Too much haste means a jumpy, exhausted, nerve-wracked spinner.

4. If one day your job runs well, try doing a little extra cleaning such as picking your revolving clearers, wiping your bottom or top roving.

Improper method of putting up ends is demonstrated by Essie Lane, Bibb teacher. Standing too close to the frame and "squatting" cause undue fatigue, unsightly posture and lower efficiency.

5. Get to your job on time and look it over. Move your top clearers. Pick the bugs and roving tails off your roving. Be careful that none of the waste matter falls into the ends.

6. Familiarize yourself with your frame and the sound of its running. In case any defect is detected, notify your section man at once.

After the worker absorbs these general suggestions, she is given a list of printed instructions for new spinners, a list of "Dont's" connected with the job, and a list of the causes of slubs and gouts. Some of the more important printed suggestions, worked out by C. E. Dorn, assistant superintendent, and distributed by Essie, are as follows:

1. A spinner must first make up his mind that he wants to learn the job properly. A determined soul can do

more with a rusty monkey wrench than a loafer with the best set of tools.

2. Quality work is of first importance. The mill that makes first-quality goods at all times gets the business and runs full time.

3. It is advisable to watch a good spinner at work. This sometimes is more helpful at first than actually doing the work yourself.

4. The proper method of starting and stopping the frame, and shaking the ring rail should be learned early. The frame should be stopped while the ring rail is coming down and in proper position.

5. It is easier to prevent ends from coming down by proper cleaning, oiling, and inspecting, than to put them up again. A good spinner does not spend too much time in any one place.

Proper method of putting up ends is to stand well away from the frame and bend from the waist. This improves the posture of the employees and quality of work. Compare with picture at left.

6. The learner should cooperate at all times with the fixer because of the fixer's longer experience and greater knowledge of spinning.

7. The learner should keep his eyes open and watch for bad roving, slubs on roving bobbins, singlings or doublings in roving, roving tail ends around skewers and roving running out.

8. In learning the job, start practicing to put up ends on only one end of the frame; then go to one stand of ends; from there to one side; and so on progressively until you can run a full job.

9. When the ring rail is low and on an empty bobbin, put up ends as follows: "Take hold of bobbin with left hand, thread up and through thread guide with right hand, then pull end down and hold both bobbin and end with left hand, thread up traveler with right hand and put end up with right hand."

10. When ring rail is at top and on a full bobbin: "Take hold of the bottom of the bobbin with left hand, thread up and through guide with right, pull end down and hold both end and bobbin with left, thread traveler with right hand and put up end with right."

11. The proper method of creeling roving is as follows: "Take full bobbin of roving from top of creel with left hand, twist in with right, break empty bobbin out by pinching off roving one inch from end of roving trumpet, lift empty bobbin out with right hand, lay on top of creel, put roving skewer in bobbin with right hand and insert full bobbin in creel with left hand. Be careful in piecing end because a long tail will make a doubling and one too short will make a singling."

12. While running outsides with side board, be sure to watch for waste under board and see that it does not get jerked into thread which will result in slubby yarn. Also watch for waste getting into yarn while wiping lapsticks.

13. Be careful in use of stand hook as it will damage leather rollers if it slips.

14. Learn how to put tape on idler pulleys and start up ends.

15. Do cleaning that is likely to make bad work—such as back sides, ring rails and thread guides—during the doff.

16. Remove large laps off lapsticks before attempting to get up ends, as the thread might pluck off waste from spinner balls while trying to pull up the ends.

17. Remove revolving top clearers from frame during cleaning, and do not mix clearer waste with white cotton.

18. It is much easier to wipe lapsticks before ends are put up than it is to clean chokes off leather and steel rollers.

19. After completing a trip around the sides, do not begin putting up ends where you left off, but start at the same place each time. This will enable you to get up ends on the largest laps first.

20. Before flagging end for fixer, examine the following items: roving for singlings or doublings, laps on middle or back rollers, chokes around steel roller stands, roving trumpet out of line, thread-guide loose, spindle out of line or shaking, bad bobbin or quill, broken rings, cocked up ring holders, lint in travelers, worn-out travelers, tape off idlers, chokes under spindles, tape running high on spindles, bad leather rollers, stuck roller due to lack of oil, roving traverse out of order.

21. Do not keep putting up the same end time after time since a bobbin with a lot of piecings on it runs badly in the next process. Flag for fixer when necessary.

22. Oil leather rollers properly with arrows pointing away from you before putting in frame.

23. Clean hands before putting up ends after picking rollers since oily or dirty yarn will streak up a pretty piece of cloth.

24. Never leave a lot of ends down for the doffer to piece up.

In a succeeding issue will be given Essie's list of "don'ts" and of causes of slubs and gouts. This should be helpful to all spinners.

Mary Jones — Age 20

Date Employed — 6/1/39

Section Man — John Doe — Education — 10th

Date	Job	Yarn No.	Standard Job	Sides Run	Percentage of Job Run	Cleaning	Amount Lost
7/13/39	Spinner	21 Sal	9	1	11.1	Fair	$2.63
7/14/39	"	21 Sal	9	1	11.1	Good	2.63
7/17/39	"	21 Sal	9	1	11.1	Good	2.63
7/18/39	"	21 Sal	9	1	11.1	Bad	2.63
7/19/39	"	21 Sal	9	1	11.1	Good	2.63
7/20/39	"	23 Nap	9	2	22.2	Fair	2.30
7/21/39	"	23 Nap	9	2	22.2	Good	2.30
7/24/39	"	23 Nap	9	2	22.2	Good	2.30
7/25/39	"	23 Nap	9	2	22.2	Good	2.30
7/26/39	"	23 Nap	9	2	22.2	Good	2.30
7/27/39	"	21 Sal	9	3	33.3	Good	1.97
7/28/39	"	21 Sal	9	3	33.3	Good	1.97
7/31/39	"	21 Sal	9	3	33.3	Good	1.97
8/1/39	"	21 Sal	9	3	33.3	Good	1.97
8/2/39	"	21 Sal	9	3	33.3	Good	197

Fig. 1—A page from Essie's record book might look like this. Mary Jones, spinner, shows continuous and progressive improvement.

British Wool Release

Australian Trade Commissioner gives prices and details on 75,000-bale lot

ON DEC. 15 the Australian Government Trade Commissioner, L. R. MacGregor, made public details regarding the 75,000-bale release of Australian wool previously made by the British Government to American industry. This allocation of Australian wool is made on a schedule of fixed prices, which, for 64s fair average spinner's wool of good top making quality, free or nearly free, figures out on a c.i.f. Boston cost (excluding war-risk insurance and duty) of 35d.

At the rate of exchange existing shortly after the middle of December it was estimated that these Australian wools, which range from about 60s to 70s quality, would cost on a duty-paid basis, landed in Boston, from 90c to $1.02 per pound, excluding war-risk insurance. It is felt in the trade that the prices were a bit on the high side, but this was accepted as satisfactory in protecting values of wools already bought, and in giving the basis for a good and firm cloth market for the earlier portions of 1940. Mills can now go ahead with their forward sales with some confidence as to the level of wool prices and availability of supplies of the finer Australians.

Although this first distribution of wool amounts to only 75,000 bales, it is believed that this is simply the amount for which bottoms are available during the next several months and it is not represented that this block of wool is all that is to be allotted to the United States.

The wool market took the whole matter in its stride and the fact that there was no appreciable fluctuation which could be credited to the British price announcement indicates that the level was carefully gaged.

The actual selling of the wool is to be handled through the Australian Central Wool Committee, 540 Little Collins St., Melbourne, Australia, the cable address being Cenwool, Melbourne. The Wool Committee will utilize shipping space as available, the freight to be payable at the American end. The insurance is also considered a responsibility of the American buyer. Selling prices are based on Bradford standards of condition. It is stated that American buyers desiring Australian wools should approach their usual contacts in Boston or in Australia, as the case may be. Dollar credits are available through the American agents of the Commonwealth Bank of Australia. Mr. MacGregor, the Australian Commissioner, whose office is at 630 Fifth Ave., New York, states that he would be glad to transmit to the proper authorities any views of a wool trader or manufacturer upon any questions involved in this allocation and distribution of Australian wool to American mills.

England is understood to be retaining all the Australian wools under 60s quality for military use. All of the New Zealand clip will probably be retained without allocation for outside use. South African wools have not been included in Britain's war-emergency purchase and are consequently available to the American user.

Silk Advance Outdoes Itself

THE MONTH of December was an extraordinary and almost inexplicable one in the raw silk market. Starting off with a strong price situation, there was a gradual ascent until, on Dec. 19, the fifth consecutive day was recorded when trading in raw silk futures on the New York Commodity Exchange advanced the full amount of the daily trading limit of 15c per pound. At that time Crack Double Extra 78% touched $4.27 on the New York market. This was followed by a recession for a day or so. The decline brought many forecasts that silk had touched its peak, yet on Dec. 26 the market had not only recovered its loss but made further advances to a new high of $4.38. Daily trading limits have been raised to 25¢.

Little new has been said about the causes behind the advance except that its continuance beyond what appear to be reasonable bounds gives some evidence that the situation is out of hand and that raw silk interests are building up a day of reckoning. American buyers are becoming extremely cautious and hosiery manufacturers (the largest users of raw silk) are being forced to shape policies which make greater and greater use of silk substitutes.

The latest high point is over 130% above the December 1938 average price. Only last September raw silk was at $3, or a 70% increase over December 1938. In this same period of 12 months the advance in price of branded hosiery of those constructions which represent the big volume, has amounted to not more than 17%. On the basis of 14 oz. of silk to the dozen, the actual increase in the value of silk in a dozen pairs of women's stockings is about $2, while the advance in hosiery has been half of that.

As a result of this difficult situation, the National Association of Hosiery Manufacturers has stated that it is highly prudent to keep stocks down to actual needs and that it would be wise to draw on gray stocks as far as possible in filling new orders. Knitting operations should be confined to orders.

Silk hosiery prices were advanced by another 50¢ to $1.00 this month and silk substitutes are used more freely.

A Final Flyer?

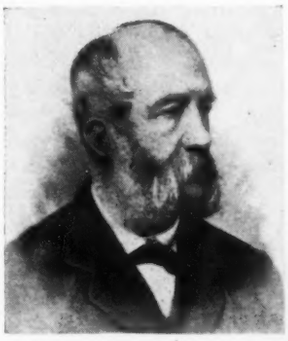
(From TEXTILE WORLD's Washington Office)

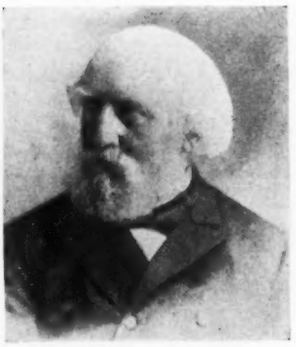
Foreign commerce officials here privately express the opinion that raw silk, priced 130% over a year ago, is taking a final flyer before old age sets in and the synthetic youngsters take over. They do not see anything sufficiently abnormal in production or consumption to justify the present price situation.

The real reason, they say, is Japan's need for exchange. Present prices are bringing her about three times as much goods per pound of silk as she used to get. They feel that the Nippon government not only permitted the sky ride of silk, but fostered it. As for damage to the future market, Japan is said to feel unconcerned; she anticipates the end of silk as a major export and is making hay while the sun shines.

Minot-Hoopers' First 100 Years

Carries same name from inception





NATHANIEL HOOPER (above)

GEORGE R. MINOT (right)

ANOTHER WORTH STREET HOUSE joins the "Century Club" this year, for it was just one hundred years ago that George R. Minot and Nathaniel Hooper set up a commission business at 32 India Wharf, Boston. The business bearing the names of those two original partners has been continuously active ever since and thus may claim the oldest firm name in cotton goods.

The firm shared prominently in the romantic era of foreign market development, building brands in the China and other eastern markets to such positions of respect that the words became part of the native language and children were named after them. Such was the Cabot sheeting of Dwight Mfg. Co., a length of which was for years part of every Chinese bride's dowry.

Nathan Hobart, admitted to the firm in 1867, established its New York office in that year. This was first at 60 Leonard St., but two years later removed to 53 Leonard St. where it remained till 1896. The two original partners guided the business for over 40 years, Mr. Minot dying in 1883 and Mr. Hooper three years later. In 1896 the firm moved to 40 Thomas St., in 1909 to 11 Thomas St. and in 1931 to 40 Worth St. where it is today.

The six partners at present composing the firm of Minot, Hooper & Co. with dates of admittance to partnership are as follows: L. William Horr (1900), George Nichols (1904), George Linton (1916), Robert W. Newell (1916), Clarence W. Horr (1920), John Bowen (1920) and R. P. M. Eagles (1939). Mr. Nichols has gained fame outside the dry goods field as owner and skipper of the racing sloop "Goose" which won the Swedish cup in 1938 and successfully defended it in 1939.

Among the prominent mills for which the firm has been selling agent are Great Falls Mfg. Co., Dwight Mfg. Co., Lyman Mills, Manchester Mills, Chicopee Mfg. Co., Harmony Mills, John P. King Mfg. Co., Jennings Silk Co. and Merrimack Mfg. Co.

FBI vs. Print Cloth Group

CHARGES OF VIOLATION of the Sherman Anti-Trust Act in connection with the print cloth branch of the cotton-textile industry have been filed in the U. S. District Court for the Western District of South Carolina against W. G. Sirrine, Fred W. Symmes, Allison F. McKissick, John B. Harris and David W. Anderson, all residents of that district, Dept. of Justice has announced.

The criminal information charges the defendants acted as a committee in charge of a so-called curtailment program recently in effect in that branch of the industry. The program, the Department stated, in which mills representing over 95% of the looms operating on print cloths agreed to participate, called for a 25% reduction in normal production for the months of July, August and September, 1939, it was alleged. The Department stated that the program further provided that during that period orders should be filled only from current production and stocks on hand should be released only if and when recommended by the committee.

It has been known in the trade for some time that the print cloth case has been under consideration by the Department of Justice. Inquiry by a TEXTILE WORLD correspondent at the Federal Bureau of Investigation in Washington brought out the further information that the case against this group was reconsidered legally when the restraint program ended Sept. 7, but that the delay which ensued thereafter was routine, and that the Department never considered dropping the case. In answer to a direct question, it was stated that no labor or political pressure was involved in the decision to push the case at this time, though some manufacturers believe it despite this official denial.

On further inquiry regarding the Madison, Wis., oil case, now pending before the Supreme Court on the question whether the jury can decide whether a restraint of production was reasonable or only whether defendants did as charged, it was stated at the Department that this oil case did not affect the delay in the print cloth case but naturally would influence the defendants whether to plead guilty, not guilty, nolo contendere, or to try delay. The industry committee, however, is expected to fight this case to the highest court. In answer to another question, it was stated that the FBI could not consider necessity for rehabilitation of the industry prior to its decision to push the case but that the defendants of course would make a strong point of this and would cite the Appalachian Coal case and many others. The case may come up in April.

Although it is tough on the five men, personally, who are involved in the print cloth case, we think it is undoubtedly a good thing to have a showdown. The issue involved is a simple one. Is it possible for a committee, headed by a man respected by those within and without the industry, to take steps to try to stabilize and restore a little profit to an industry in which the savings of many hundreds of people are invested and on which the livelihood of many thousand workers depends? Or is this illegal and criminal, irrespective of the motive and the result? To those of us inside the textile industry, implications that the print cloth group action was monopolistic in intent or accomplishment are just plain silly. If a sick industry can't be saved without its saviors running amuck of the law, then the sooner the law is changed the better for this country—*Editor.*

NLRB's Skeleton-Closet

Leiserson throws open the door at House committee investigation — Some show!

From TEXTILE WORLD'S
Washington Office

SOME HURRIEDLY INGESTED REFORMS of the New Deal are green apples to the country, and the one that's giving it the worst stomach-ache is the National Labor Relations Act and its administrative board. It would be a mistake to expect that whatever Congress or the President might do would be a quick cure. It's one of the most vexatious and complicated problems confronting the Administration.

Before the Supreme Court's momentous decisions of Jan. 2, upholding the broad powers of NLRB, opinion here was that Congress might avoid this hot question this session. But since the decisions, it looks as if AFL, employers, and a substantial bloc in Congress will force action.

The present investigation of NLRB by a special House Committee is the most merciless exposé that Washington has seen in a coon's age. The reason is that William L. Leiserson, the forthright new appointee to the three-man agency, is working on the inside, not outside, as most reformers must. Leiserson tried to get the other two, Chairman J. Warren Madden and Edwin S. Smith, to clean out what he thinks is slipshod administration, prejudice, procrastination, and "nonsense." They didn't go along, so he threw open the door to the skeleton closet.

For 30 years William L. Leiserson has been mediator and arbiter of labor problems. He came to this country an Esthonian boy of 7, is now 57. From 1934 to last spring he was a member of the National (Railroad) Mediation Board. He has long believed that poor administration and not bad law put the Wagner Act in disrepute. Last April President Roosevelt named him to replace Donald W. Smith on NLRB. He is the masthead to which the main lines of the Congressional investigation are fast

Congress could produce a profound effect simply by changing the name of the act and the board, automatically dismissing the board and opening the way for new appointments. President Roosevelt himself will have an opportunity to do some fixing when Madden's term expires in August, 1940. It has been proposed to kick Madden upstairs to a judgeship or something, and put in a man who would vote with Leiserson. Such a move would temper the CIO-AFL row, and would modify by interpretation the effects of the law, which employers hold to be a burden. Chances are that the investigation will be kept going all through the spring, in an attempt to relieve Congress of tackling the labor buzz-saw in front of election. One tip is that Leiserson looks good for chairman of NLRB. A demand for the resignations of Madden and Smith have already been voiced in Congress.

Testimony brought out in the eight days of hearing revealed that Leiserson had tried to get his colleagues to fire Nathan Witt who, as secretary of the board, is a sort of super-information and order man. Witt admitted that he had illegally advised CIO, before the board had taken jurisdiction, on how to get a ruling in the "little steel" case. The New York regional director, Mrs. Elinor M. Herrick, said that NLRB examiners had used "Ogpu" methods in looking into her office. It is no exaggeration, in summing up Leiserson's testimony, to say he thinks administration of the law is lousy and he wants it radically improved. The committee reconvenes with Congress.

"Liberal Arts" via Hosiery Mill

LATCH NEEDLES along with Latin may become the rule at Athens (Ala.) College where plans are going forward to erect a silk hosiery mill on the campus. The idea, according to Dr. E. R. Naylor, president of the college, is to furnish jobs for needy students. The first unit, scheduled for completion next spring, is expected to cost about $50,000 and is being financed by an unnamed philanthropist who will also supply money for the erection of three additional units by 1943.

Each unit is expected to furnish 100 students with part-time jobs. It is understood that the workers will receive 25c. an hour for the first 480 hours and 30c. for the next 480 hours. Both training periods will be completed during the first school year. Wages for the second, third and fourth years will be 40c. an hour. Bonuses of 5c. an hour can be earned the first three years and 10c. an hour the fourth year. Output of the mill will be sold on a contract basis, and the college expects to break even on the sales.

Dr. Naylor insists that the step is not directed toward making Athens College a vocational school, but is intended to give the students means to obtain a liberal arts education.

Commenting on this move, Earl Constantine, president of the National Association of Hosiery Manufacturers, states:

"While there can be little question that managements in the hosiery industry are sympathetic with vocational training in high schools and colleges, and with efforts on the part of such schools to provide work which will allow a greater number of young people to obtain a college education, the hosiery industry must protest against the establishment of such 'school mills' whose product is manufactured at wage rates which are for the most part 'learners'' rates or the minimum hourly rate permitted under the wage-hour law, and whose product goes into channels of commerce in competition with the product of the established hosiery manufacturers."

Wage-Hour Showdown Approaches

Opp Cotton Mill suit Jan. 30 will be followed by appeal to Supreme Court

From TEXTILE WORLD'S Washington Office

IT IS REASONABLE to expect that the Supreme Court will decide the fate of the wage-hour industry-committee system, possibly during its present term, which ends in June, or in the fall term, which begins in October. Oral argument before the Fifth District Court on the Opp Cotton Mill suit to prevent the Government from enforcing the 32½c. textile wage order has been set for Jan. 30. At this writing there has been no definite move to postpone the hearing. Whichever side loses will certainly appeal for justice to the nine young and old men in the Greek temple on Washington's acropolis. Meanwhile, the wage-hour administrative mixup, wherein three cooks (Fleming, Jacobs and Perkins) are two too many, is due for examination by Congress.

Whatever interest the country, and the textile industry, may take in the Opp case, Washington so far displays little concern. The apparent reason is that Administration officialdom confidently expects the high court will rule for the Wage-Hour Division. They don't see how it could be consistent and decide otherwise.

The southern manufacturers' petition for stay follows the general lines of the minority report of Industry Committee No. 1, and it is assumed their brief will hinge upon the same points. They claim that the entire act is unconstitutional; that the wage-order section of the law improperly delegates authority; that contract obligations of manufacturers would be impaired by enforcement of the wage order; that owners are deprived of property without due process; that congressional authority has been extended beyond its scope, invading the functions of the States. Proponents of the wage-hour cause say that all these arguments have been eliminated in other cases. The division's answer is being written and will not be released until Jan. 25. No doubt it will follow the reasoning of the former administrator in support of his textile wage order.

Ben. F. Cameron, of Boseman, Cameron & Boseman, of Meridian, Miss., chief counsel for the Opp company, is expected to file his brief Jan. 15. The Wage-Hour Division will file its answering brief Jan. 25. The Government's case will be argued by General Counsel George McNulty, assisted by Louis Sherman, a young attorney of the staff who was adviser to former Administrator Andrews during the hearings in Atlanta on the textile wage.

In all, 18 companies now have tossed their hats into the ring: in the Fifth District, Opp Cotton Mills, which filed the suit; 14 intervenors who, like Opp, posted $10,000 bond each, guaranteeing wage restitution for the period of stay, in case the decision is against them; one intervenor who, at this writing, had petitioned the court but had not yet been granted the stay; in Arkansas, in the Eighth District, two companies, the Monticello Cotton Mills and the Magnolia Cotton Mills, each, in a town of the same name, filed a joint suit and posted bond. As yet there are no intervenors in the Eighth District, and none is expected. The Monticello-Magnolia case probably will not come up until after the Opp case has been disposed of.

COMING BACK to the general wage-hour picture, and the administrative confusion that followed the resignation of Elmer Andrews, it is expected that the White House will immediately send to Congress a bill authorizing the appointment of Lt. Col. Philip Fleming as Administrator. Meanwhile, to give legality to its various documents, Harold Jacobs, former publicity chief of the division, was appointed administrator. Although there is no official limit on Jacobs' tenure, it is expected he will resign if and as soon as Congress authorizes appointment of Fleming and the Senate confirms him. Main opposition to Fleming will come from organized labor, which is fed up with military officers in administrative jobs. There may be an effort to force Secretary Perkins out of the wage-hour picture.

Nobody is sure which one of this triumvirate rules the domain of Wages and Hours. Of course their general orders come from the big white house at 1600 Pennsylvania Avenue. Lt. Col. Philip Fleming (left) is the High Trouble Shooter, brought in to succeed Administrator Elmer Andrews. Sartorial newsman Harold Jacobs (right) wears the title of Administrator. Behind the arras, though, is Secretary of Labor Perkins (center), who is suspect as the real boss. Wherever the responsibility, things are not going too well, and Congress will ask questions

Col. Fleming's most recent move was the establishment of a "direct administrative line of authority," a procedure under which orders will go direct from the Administrator through regional directors to the field staff. This direct control aims at "the maximum of orderly enforcement." At the same time, Col. Fleming announced reallocation of the country into 15 regions instead of 17. The principal change is the reapportionment of the western States. Personnel of the Division has increased rapidly of late to a total of 1173 of whom 701 are in the field. Interpretative Bulletin No. 4 has been revised and reissued.

Textiles in Argentina

Industry is lusty and growing with room for further expansion

BY WILLIAM G. ASHMORE
Southern Editor, TEXTILE WORLD

South America periodically inflames the imagination of American business men, as we said last month in connection with an analysis of textiles in Brazil, and, with Europe's involvement in war, many companies have been looking southward. The following is based on a trip by the author last August.

THE TEXTILE INDUSTRY of Argentina, in contrast to that of Brazil, is new, lusty and virile. Most of the spindles and production equipment were put in within the last ten to fifteen years, and more than a few of the plants are comparable to those of the United States in efficiency. The industry is growing rapidly and there is room for further expansion.

At the present time, there are perhaps 200 mills of importance operating in the country: cotton, wool, rayon, silk, and knitting. However, the industrial census of 1935 lists over 4,500 establishments of various sorts, most of which consist of one or two looms in somebody's basement or woodshed. These small outfits, known as "faconiers", produce an appreciable part of the total output of textiles.

The cotton-textile industry consists of some 20 plants with a total of 350,000 spindles. The next census is expected to show at least 450,000 spindles. There are a few large plants in the sense that we in the United States know them, but the majority are small. There is thought to be room for twice present number of spindles.

There are two rayon yarn manufacturers in Argentina. Production figures are a closely guarded secret, but the larger plant, operated by DuPont, is said to make at least 85% of the domestic yarn. Only filament yarn is made at the present time.

There are a great many small rayon faconiers, but only eight or ten plants of real importance. These latter operate from 50 to 200 looms each.

The cotton-textile business had a bad year in 1938 due to competition from Japan and Italy. However, with normal protection from this type of competition, the industry is profitable. The better plants earn from 10% to 20%, it was told me on good authority, and look on 6% to 10% as "a bad year." The small faconiers "earn a living."

Since the country must keep its tariffs on manufactured products low in order to export agricultural products, the local manufacturers are never quite sure just what competition they are going to have from other textile-producing countries who make trade agreements with their country.

There is also considerable competition among the mills themselves. The haphazard attitude toward modern machinery that exists in Brazil is not in evidence. Old machinery has almost as hard a time competing in Argentina as it does in the United States. There is thus no incentive for an American manufacturer to move old machinery to Argentina.

ARGENTINA IS NOT A LOW-WAGE COUNTRY in the sense of Brazil. Ordinary unskilled workers earn $1.50 to $2.50 a day in Buenos Aires; skilled laborers more. Furthermore, the efficiency of the Argentine worker is very high in comparison with other Latin American countries. Most of the textile employees are of Italian descent.

Argentina has its share of social laws. There is a famous statute on the books known as "No. 11-7-29", which includes the following: A person who has been employed for three months is considered a "permanent employee". He cannot be discharged without payment of one month's wages for the first year worked and one-half month's wages for each year after that. Each employee must have two-weeks vacation with pay each year, and may be absent due to illness for as long as three months each year with pay. The mill, regardless of business conditions, must guarantee at least nine months employment each year. Extra shifts to take care of bulges in business become more or less permanent because it is virtually impossible to fire anyone after he becomes a "permanent employee." Work week is 48 hours. Work day is 8 hours; 6 hours in dusty rooms. A two-hour lunch period is required by law. Complications and penalties connected with this law are so great that one mill man told me that he adds 8% to 10% to his overhead costs to cover it.

This textile plant is typical of the smaller firms in Argentina. Some of the newest plants stress extreme modernism in building construction

Aerial view of the Alpargatus company, in the heart of Buenos Aires. This company, employing 7,500 persons, makes a variety of products including shoes, cordage, lace, duck, circus tents and tire cord

Labor unions are existent in Argentina, but are considered rather impotent. There were 44 strikes among all industries of Argentina in 1938; the number has seldom exceeded 100 strikes per year.

Market conditions in Argentina demand a great many different styles in relatively small quantities. There are a few commission merchants, but most goods are sold direct.

"Running a mill here drives an American mill man nuts," declared the manager of one large plant, "I have had several American assistants, but most of them went home after a short time. There are a million detailed problems here that we don't have in the States. For example, see that machine over there? Well, I invented it last week. We don't have machinery salesmen calling on us every day."

S. A. FABRICA ARGENTINA DE ALPARGATUS, of Buenos Aires, is probably the outstanding mill in Argentina, if not in all South America. This company, with plants in Uruguay and Brazil, was founded in 1885 by Robert Fraser, of Scotland, and today is being operated by the second and third generations of Robert Frasers. The company has grown from a small firm occupied exclusively with manufacture of alpargatus, a cheap shoe for workers, to a company employing 7,500 persons in Buenos Aires alone and producing a wide variety of products.

The Alpargatus company is probably one of the world's most successful examples of backward integration, with variations. Since the alpargatus consists of a jute sole and canvas upper, it was natural that the mill would eventually produce its own jute twine for the soles and canvas for the uppers. But this was only the beginning. The jute mill expanded into making all kinds of jute, hemp and sisal products; the cotton mill branched out from duck and canvas into tire cord, bed ticking, shoe laces, fire hose, towels, lace, sewing thread and even circus tents.

The textile division of the company, founded in 1900, consists of a complete 50,000-spindle cotton mill and considerable special equipment. Probably 90% of the productive equipment is British, the remainder being American, French, Italian, German and Belgian.

"Most of our American equipment," declared Robert Fraser, president of the company, "was purchased as a result of advertisements which we read in TEXTILE WORLD and other trade papers. We are a long way from any source of supply."

In view of the difficulties of getting supplies, particularly under anticipated war-time conditions, Alpargatus for the last several years has kept a full year's supply of raw materials and machine parts in three huge warehouses. This investment no doubt has already paid for itself since war broke out.

Practically all of the productive equipment in the textile mill has been installed within the last few years. Long-draft spinning is standard. Large packages are stressed throughout. Spinning speed on 23s yarn, 8-in. bobbin, 2-in. ring, Argentine cotton over 1-in., was 8,300 r.p.m. Single-process, two-headed English pickers were producing 827 lb. per hr. on a 14-oz., 44-yd. lap. Other basic speeds were in line with U. S. operation. Due to lack of additional floor space numerous conveyor belts are used. One of them is known as "a moving stock room." Incidentally, the larger machines are highly personalized by the operatives and known by names such as "Queen Mary."

Out of the 7,500 persons employed by Alpargatus, it is unique that 6,800 are women—young and pretty women, too! No job is too big or too tough for these girls. They run, and run well, the heaviest machinery in the mill. Even the overseers are women, who think nothing of putting a wrench to a machine if a mechanic is slow. All the workers at Alpargatus wear uniforms designating the department and rank of the individual. The mill operates a cafeteria, a medical clinic, canteen, etc. The mill engineer and superintendent of weaving live in pent houses on top of the mill so as to be close to what's going on at all times.

Alpargatus has a very aggressive sales policy, with 90 automobiles on the road selling directly to merchants.

ARGENTINA PRODUCES ALL COTTON used domestically and exports a part of the crop each year. Domestic cotton growers are protected to the extent that cotton mills are allowed to bring machinery into the country duty-free providing they agree to use only Argentine cotton. There is said to be only one mill in the entire country which has paid duty on its machinery in return for the privilege of importing foreign cottons. But the tariff on cotton is so high, well over 20%, that this mill seldom uses its privilege.

Argentina is not thought likely soon to reach any place of prominence among cotton-raising countries of the world. The top crop, in 1936, was only 81,000 tons,—about 350,000 American bales. Yet this represented an increase of 260% over 1931!

Argentine manufacturers say that in general the cotton is of good grade and staple, although rather uneven due to faulty picking and ginning. It averages better than 1-in. I saw excellent tire cord—which demands the best types of cotton—being made from carefully selected bales.

In recent years, an average of 1,000,000 acres of land have been planted in cotton. An experienced American cotton man told me that there are at least 10,000,000 acres of land in the Chaco region of northern Argentina available for cotton. A small amount of irrigated cotton is being raised in the dry foothills of the Andes, largely by Mexican cotton farmers whose lands were expropriated at home.

The most important limitation to Argentine cotton production is the same as in Brazil,—lack of man-power to increase the crop appreciably.

Beating the Bombs

Ingenious English and French fabrics afford air-raid protection

WAR IN EUROPE has created hundreds of new problems for industry. Changes in fighting methods have necessitated new kinds of gear, and required new types of defense precautions. Many of the new problems have fallen squarely into the lap of the textile industry. Mills in England and France, for instance, have developed new fabrics and new finishes which are helping to meet the day to day emergencies caused by the war.

Many of these new cloths, without question, are closely guarded military secrets, especially those which will be directly used by the fighting forces. But news concerning others of the new fabrics, notably those intended for home defense purposes, can be dug out from among the numberless columns which newspapers and magazines are printing about the current conflict. When brought together, these items form an inspiring picture of the ingenuity and tireless effort of the industry.

Air-raids on civilian areas have created many new problems. One of the first of these was to make it as difficult as possible for approaching enemy planes to locate desirable targets. The much publicized "blackout" resulted. Textile fabrics are being used to a large extent to cover windows, skylights, and other openings. Government specifications require that no more than 0.001% of light may penetrate any fabric for such uses.

One fabric of this type is shown in Fig. 1. This cloth is a coarse cotton sheeting, the face of which has been given a coating of a dull black compound which renders it opaque. The base fabric contains 60 ends and 48 picks per inch. Yarns approximating 20s to 25s in count are used for warp and filling. The fabric is woven plain, and is 50 in. in width.

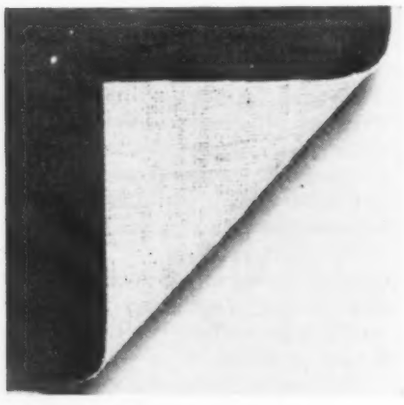


Fig. 1. Blackout cloth

Illustrations from samples in "Silk and Rayon"

Some twenty different cloths were submitted for a series of experiments to determine what was a suitable cloth for blackout purposes. The cloths were of several different types, including sheetings, cotton serges, blind (shade) cloth, and others. One interesting fact observed was that while some of these cloths were perfectly satisfactory when viewed on the axis, they transmitted a considerable amount of light when viewed at an angle of 45°. Another fact noted was that certain cloths, when viewed with the warp vertical, had a very different light transmission than when viewed with the warp in the horizontal direction.

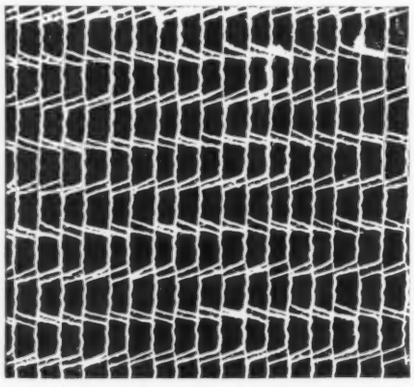


Fig. 2. Cloth for shatterproofing glass

Protection against bombs which score hits is another problem which the textile industry has helped to solve. Shatterproofing of windows is an example. What was needed was a quick and relatively inexpensive means of protection. Figs. 2 and 3 show how this was accomplished. In Fig. 2 is illustrated a machine-made net fabric to which has been applied a strong adhesive material. In use, a piece of correct size is cut from a roll of the material, applied to glass which has previously been dampened, and pressed firmly into placed with a wet cloth. The net is made of cotton, with meshes approximately $\frac{1}{8}$ x $\frac{3}{16}$ in. in size.

A method said to combine blackout protection and shatterproofing consists of painting windows with a "special light-filtration paint" and covering the glass with cotton scrim.

Use of sandbags for fortification and protection purposes has also called for ingenuity on the part of the textile industry. In the last war, it is stated, sandbags were used only at the front, but in the present war they are being used in towns and cities far behind the lines. To meet the demand, there has been an increasing use of bags made from the fiber of coconut husks, by means of a process developed some years ago by a French concern. It is said that coconut-fiber bags will last ten times as long as burlap bags when exposed to the elements, and that the former can be produced for one-fifth the cost of the latter.

Fig. 3. Applying shatterproofing cloth

In connection with methods for protecting sandbags against damp, specifications have been issued by the British government for the use of creosote or a solution of copper oleate in creosote as an application to the exposed surface of piles or bags.

DANGER FROM GAS has resulted in development of a variety of protective devices in which textiles play a part. Among these are gas masks; gas-proof fabrics for clothing and window coverings; blanket felt for rendering doors and windows gas proof; adhesive tape for repairing damaged gas-proof materials, sealing apertures and cracks, etc.; and sponge-rubber gaskets covered with gas-proofed cambric cloth.

For protection against fire, increased use of asbestos clothing, blankets, and other similar products, has been noted.

Data in this article have been compiled from various issues of the following publications: *Silk and Rayon*, *Textile Manufacturer*, *The Engineer*, New York *Sun*, and British A. R. P. Standards.

Finishing Spun-Rayon Gabardines

Time—and money-saving methods for producing best handle and appearance

By PHILIP LEBRUN

CURRENTLY POPULAR among spun-rayon fabrics are gabardines in various weights, colors, and finishes. To avoid breaks, Heavy gabardines (3.3 yd. or less per pound) are best handled on jigs at full width throughout the entire wet processing. Lighter-weight fabrics are scoured full width and then rope dyed.

It is rather difficult to obtain good penetration when deep shades are dyed on a heavy, closely woven gabardine. Such fabrics are therefore beamed up on a shell, about 750 yd. constituting an average lot. This is sewed on a butt-seam sewing machine, because the ordinary flap seam would cause repeat marks and moiré. The pieces should all be sewn together face down. The gray goods are then pad dyed, about 2 to 2½ lb. of sulphonated castor oil and an equal amount of soda ash or trisodium phosphate being added to each 100 gal. of the dye solution. After padding, the cloth is transferred to a jig containing a dilute solution of the pad liquor, and dyeing is continued for 8 to 10 ends at 175 to 180° F. The jig serves three purposes: It enables the dyer to complete the scouring while dyeing; it allows the color to be set by use of salt so that it will not bleed; it permits the dyer to obtain an accurate match by cutting a patch and then subsequently shading if necessary. Most gabardines so dyed are aftertreated with formaldehyde and acetic acid to obtain greater fastness to perspiration and washing.

Excess tension during jigging will lessen penetration and make dyeing more difficult. It will also be harmful to the final finish by making the cloth more open and by giving a more or less permanent moiré.

Light-weight fabrics are usually given a preliminary scouring on a continuous unit, consisting of a full-width wetting-out box from 6 to 30 ft. long, and are then scoured on a rope scouring unit. The entire scouring process takes about 30 to 40 min. and is carried out at a speed of 50 to 60 yd. per min. The material is then transferred to a reel machine, where it is dyed. It is important not to crowd the fabric too much on the dye beck. Overcrowding results in numerous crows' feet and breaks, which are difficult to remove.

Jig-dyed gabardines are generally transferred directly from the jig to a Palmer unit, consisting of two-roll mangle equipped with a size pan and expander; a housed frame 30 to 60 ft. long; and a Palmer calendar. The excess water is removed by passing the cloth through the nip rollers of the mangle, and the drying is completed by passing it through the remainder of the unit. It is important not to have the twilled face of the fabric come into contact with the hot Palmer drum, and it is for that reason the pieces are sewn together face down. The luster on the finished fabric can be controlled to some extent by regulation of the tension on the Palmer blanket; the tighter the blanket, the higher is the luster, and vice versa. After drying, the cloth is calendered and tubed for shipment.

Rope-dyed fabrics are sewn together, opened up on a scutcher or opening machine, and folded into a truck. The fabrics are full of wrinkles and creases which would be pressed into the cloth to form practically permanent breaks or shifts if the fabric were passed between nip rolls. To prevent this from happening, some finishers dry the cloth on a loop dryer and then frame it before it is finally passed through the Palmer unit. The quetsch in this case contains water further to flatten the fabric and remove all evidence of previous rope dyeing. A less expensive method is to provide a scrimping or expanding roller immediately before the nip on the mangle.

Many gabardines are waterproofed or otherwise sized to obtain definite characteristics required by the customer. Jig-dyed fabrics may be waterproofed by adding the finishing material to the final rinse water in the jig. A 3 to 5% solution of an aluminum acetate-paraffin wax emulsion usually is employed.

SYNTHETIC RESIN FINISHES are commonly applied by means of a second pass of the fabric through the Palmer unit. To save time and labor, some finishers run the dyed fabric over a vacuum extractor and then size it wet on the Palmer unit. To obtain a uniform percentage of size throughout the fabric, the feed-in solution should be one-third stronger in resin content than the original solution in the size pan. This empirical figure is based on cloth containing approximately its own weight of moisture.

The lighter-weight fabrics are often given a gum sizing in order to impart more weight and body to the goods. This is accomplished by a second run through the Palmer unit, using a size mixture containing, for example, approximately 1 qt. of glue (50% gum arabic), 2 qt. of soft gum (2% locust bean gum), and 1 qt. of sulphonated olive oil (75%) per 50 gal. These fabrics may also be finished wet by feeding a one-third stronger size to the size pan.

Jig-dyed gabardines are occasionally dried by passing through a quetsch to a nest of dry cans. Such fabrics always have an objectionable luster, due to the ironing action of the hot metallic surface on the moist cloth. This can be counteracted to some extent by wrapping the first two or three cans of the unit with cotton cloth. At best, however, this expedient will lessen the luster only slightly. In addition, dry cans also flatten the twill of the fabric to an objectionable degree. Use of dry cans for gabardines is, therefore, limited. To obtain a mellower handle and to help eliminate any breaks and crows'-feet still visible after Palmering, many rope-dyed fabrics are decatized as a final operation.

A properly finished gabardine should have a slightly raspy face, a smooth back, and a full handle. This type of fabric should also have little tendency to wrinkle. The latter quality is improved by the use of various resilient resins or, where the customers will not pay for the extra cost of the latter, by the omission of all oils and gums from the finish.

The lubricant or softener used in dyeing is sufficient in such cases to prevent any objectionable dry, cottony feel in the finished goods. The lighter fabrics are used more frequently for sport shirts and dresses. These materials must be softer and drape more easily than the heavier fabrics. There usually is less distinction between the back and face, although the latter should be the less lustrous and raspier side.

Motor Maintenance

Close checking of electrical equipment will cut up-keep and increase life

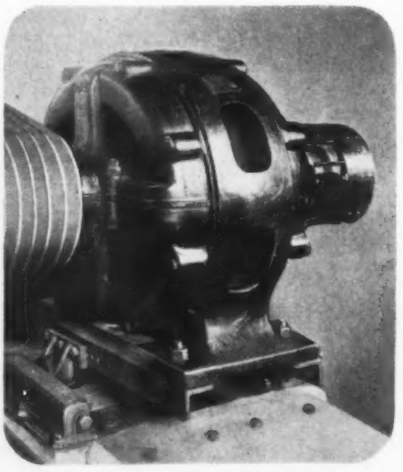
By B. L. CATHEY
Westinghouse Electric & Mfg. Co.

ONE OF THE MANY responsibilities of a master mechanic (or an electrician) is the inspection, maintenance, and—in some cases—the repair of electrical equipment. It is his duty to see that the equipment remains in service with a minimum of outage and a minimum of maintenance and repair. While there are many different kinds of electrical equipment, in textile mills a very large percentage of it consists of squirrel-cage motors and controllers. Therefore, this discussion will be confined to the consideration of this particular type of equipment.

The squirrel-cage motor develops very little trouble of itself, but it is affected by the performance of the controller. Probably more motors fail from single-phasing than from any other one cause. Sometimes the motors have been blamed when actually the trouble was in the control or in the wiring. At one time, before the modern bearings came out, the bearings caused more trouble than anything else. There was a time when 85% of the motors that came into our shop for repair were there because the bearings had failed. Either the bearings themselves had failed or they had thrown oil on the insulation and caused it to rot.

In order to reduce the maintenance of equipment to as low a cost as possible, an inspection of the motors and controllers should be made periodically. The oil level, the air gap, and the windings should be checked. Small motors, like loom motors, require very little inspection, and it is doubtful whether it pays to make a thorough check on those. It is well to take one motor and check it, to see if oil is being thrown on it or if it is clogging up. By inspecting one of the motors from time to time, one can get a pretty good idea of how they are clogging up, and so forth. The cost would be prohibitive to make a thorough inspection every six months, as should be done with larger motors.

Do not over-oil a motor. If the oil is getting out of the bearings, it is undoubtedly getting on the winding; and oil will quickly rot the insulation. Any considerable amount of oil or grease on the winding should be first wiped off with a rag, and then the winding should be washed with gasoline or a mixture of 60% carbon tetrachloride and 40% gasoline. The winding should then be thoroughly dried by wiping the excess cleaning fluid off with a rag. Then, if possible, the motor should be placed in an oven and baked out for 8 or 10 hr., at a temperature of 125° C. [About 250° F.] If no oven is available the winding should be dried as thoroughly as possible and then painted with a high-grade, insulating, air-drying varnish. The varnish will fill any cracks in the insulation and prevent the entrance of moisture or conducting materials.



Large motors need inspection at periodic intervals

BEARINGS require very little attention—ball bearings practically none, except an occasional shot of grease. Sleeve bearings should be inspected from time to time to see that they are not running at an excessive temperature and to see that the oil ring is turning. There is only one cause for a sleeve-bearing failure—failure of the oil film. As long as the oil film can be maintained, the bearing can not fail.

There are several reasons why the oil film may fail. These are enumerated, in order of their most frequent occurrence as follows: (1) lack of oil, due to neglecting to fill the bearing on starting up, to the oil having leaked out, or to the oil ring having stopped turning; (2) belt tension too great; (3) oil too light for service; if this seems to be the trouble, a reliable oil company should be consulted or, if for any reason this cannot be done, the manufacturer of the motor should be asked for specifications as to the oil to be used; (4) bearing that is rough or cut by grit; (5) thrust on oil thrower or collar—these are not intended to take thrusts; (6) shaft not round; i.e., it is egg-shaped, due to an unbalanced rotor or pulley; and (7) shaft sprung in the journal. With the possible exception of the last two faults, the remedy for each is quite evident.

If the shaft becomes egg-shaped, the solution is to turn the journals and make an undersized bearing, or to install a new shaft with a standard bearing. However, the unbalanced condition still must be cleared up. A static balance is usually satisfactory. The pulley should be removed and the rotor placed on the balancing ways and balanced. After this is done, the pulley should be placed back on the shaft, keyed in place; and weights should be added to the pulley, if necessary, to balance the complete unit.

Probably the most difficult bearing trouble is flexing of the shaft in the journal. This is extremely difficult to locate and is puzzling. A motor may operate perfectly without a belt, the journal be perfectly true when the shaft is placed on the lathe centers, the belt tension be well within standard practices; and yet the bearing will heat as soon as the belt is tightened. As a rule, this condition occurs only where the journal has been turned down and undersized bearings have been installed. The remedy is to install a new shaft with standard bearings. However, this trouble has been known to develop in some motors with standard bearings, due to a wide over-hung pulley or to the pulley's being located too far out from the motor bracket. Of course, the pulley always should be located as close to the motor bracket as possible.

THE ROTOR of a squirrel-cage motor seldom gives trouble. However, rotor bars may break or burn in two, and end rings may become broken. The results of such failures usually are a pronounced drop in the speed of the motor and, in some cases, excessive heating. Also, one will find that the motor

(Continued on page 66)

Abstract of a paper presented at the fall meeting of the Northern Master Mechanics Division of the Southern Textile Association at Charlotte.

Knitter, Use Caution

In the substitution of rayon for silk in full fashioned hosiery manufacture

By MILTON M. ABRAMS

IN THESE DAYS of mounting material costs, hosiery manufacturers are faced with a serious problem. For the first time in years the value of the material content of full-fashioned hosiery exceeds the labor investment. As this article is being written, raw silk is well over the $4 price level and there is no indication of any price pegging or stabilization. Even the cotton market has caught the fever, and cotton prices have substantially advanced. Likewise rayon yarn prices have increased.

Today the full-fashioned hosiery manufacturer is subjected to pressure simultaneously on two fronts. On one side he has the pressure of a rising commodity market and he must decide to his best ability when to buy and when patiently to wait. On the other side he has the buying pressure of his customers. Styles must be manufactured to fit into certain price brackets. The cost of the product must be adjusted through some device so as to enable the customer to purchase the hosiery at a figure close to last season's price.

Here all the manufacturing skill and ingenuity of the knitter are rallied to the cause. First, the manufacturer must make a drive, or at least make a new effort, to attain maximum production, greater efficiency, and higher quality in his manufacturing. Now, when costs are high, every item counts, and only the highest producers in the mill and those maintaining the best quality of workmanship can be retained on the payroll; all others become expensive luxuries. A worker who damages a product with raw materials costing $4 per lb. commits a far more serious error than a worker damaging a product containing raw materials valued at $2 per lb. Once the manufacturer has put his house in order, he must cautiously approach the problem of reducing the material cost of his product, without cheapening it to a point where the salability of the article will be seriously affected.

Cotton has long been used in hosiery manufacturing; in the early days of full-fashioned hosiery, a considerable portion of the stocking leg was manufactured from cotton. Only the small part of the stocking that was visible below the skirt length was made from silk. As skirts grew shorter and silk cheaper, the silk level of the stocking followed the hem line; the shorter the skirt, the shorter became the cotton top on the stocking.

In recent years silk tops have replaced cotton tops on all hosiery, except some service-weight hose. A few mills still put cotton tops on chiffon hosiery, but a universal adoption of this practice would probably result in consumer resistance. In any event, high-count cotton yarn is an expensive material. Therefore, in order substantially to reduce the cost of a style, the manufacturer will undoubtedly turn to rayon and other synthetic fibers. Until Nylon is made available commercially and more experience has been gained with other of the newer synthetic fibers, cuprammonium and viscose rayons remain of chief importance to the full-fashioned hosiery manufacturer as substitutes for silk.

Many precautions are necessary when rayon is employed in knitting full-fashioned hosiery

CUPRAMMONIUM RAYON has its own characteristics which must be taken into consideration by the knitter. Let us assume that a manufacturer has decided to use cuprammonium in the welt, after-welt, sole, toe, and heel reinforcements. The ordinary chiffon stocking is made with a 6- or 7-thread silk welt. In this case the manufacturer would use 100-den. cuprammonium. A number of precautions must be taken in knitting. In the first place, as cuprammonium does not have elasticity of silk, the welt has to be knit looser than if one were knitting silk. Again, cuprammonium yarn is slippery, and care must be taken that the yarn does not slip off the needles, causing blind stitches.

As cuprammonium costs considerably less than silk, the manufacturer will undoubtedly make a good, deep welt and after-welt, probably the two

measuring 6 in. In the heel, sole, and toe it is advisable to plate the main silk leg-thread over the rayon reinforcement. In the heel 150-den. cuprammonium is a good count to use; 100 den. will be sufficient in the sole; and 250 den. is advisable in the toe. Most of the abrasion and wear of the stocking are encountered in the heel and toe. For that reason the silk is plated over the rayon to give the stocking added wearing qualities. Cuprammonium yarn should be run dry, as it loses strength when wet. Care should be taken in the seaming of the stocking. The seam should be looser than in the ordinary silk stocking to allow for shrinkage in the rayon welt. If this is not done, the seam at the back of the welt will kink and snake-up when the stockings are dyed.

Today, as never before, the skill of a competent hosiery dyer is required. Perfect color matches are essential. In submitting a product containing a substitute fiber to the consumer, one encounters far greater sales resistance when the substitute fiber stands out by contrast in color or touch.

VISCOSE RAYON. Due to the tremendous demand for cuprammonium yarn, it is difficult to procure. Accordingly, some of those mills which are unable to obtain cuprammonium rayon are turning to the viscose type. Similar precautions should be taken by these mills in using viscose. Samples of proposed styles should be made up, dyed, and tested in every possible way before attempting production on a commercial scale. Careful investigation and experimentation at the start may prevent serious error and financial loss at a later date. Each brand of rayon has its own peculiar and distinctive characteristics, and these should be thoroughly investigated and considered before any decision is made. Some are unsuited for the hosiery trade; others are quite satisfactory when used in the proper weights and deniers and applied in the proper manner.

Some mills are conducting experiments, using a combination yarn containing one end of 75-den. viscose twisted with one end of 20/22 den. silk. Under proper manufacturing and dyeing conditions, this makes a fabric having excellent wearing qualities and appearance. The feel and appearance of the fabric is surprisingly silk-like. Experiments have also been conducted along similar lines, using a 13/15 den. silk in place of the 20/22. However, this does not cover up the viscose sufficiently, and the fabric has too artificial an appearance.

THE MANUFACTURER in working with various substitute fibers must employ extreme caution and care. He must see that his product is knit carefully under specifications and conditions conforming to the characteristics of the fiber he is using. Careful dyeing and color matching are of vital importance. The synthetic fiber should match the silk as closely as possible as regards shade and feel. If a cotton plating is used in the sole and toe, the dyer must be doubly careful, as this involves a triple color match—silk, rayon, and cotton. It takes a mighty good dyer to match al three of these. Unless the product will wear and will reasonably resist garter strain and shoe abrasion, it is worthless. It is a smart thing to develop a product to fit within a certain cost bracket; but if the product will not give service, what good is it?

Before the next season has passed into history, there will unfortunately be plenty of mills which will manufacture stockings containing substitute fibers that will not wear. Somebody will have to take a loss on these, and that somebody will probably be the manufacturer. Therefore, be careful.

Motor Maintenance

(Continued from page 64)

will start up very slowly, or not at all.

In the case of rotors with aluminum end rings and bars, the only solution is to replace the rotor. In those cases where the rotor has brass or copper bars and end rings, they can be repaired by welding if the break is not inside the lamination. However, if many of the bars are broken, it is advisable completely to rebuild the squirrel cage. This trouble occurs most frequently on old motors, where the end ring is bolted to the bar. These bars should be brazed to the ring all around. This will eliminate the trouble.

Controllers should be inspected at frequent intervals. Look for any sign of heating. Also check all contacts and replace any that are badly burned. Examine lead terminals for signs of heating.

In case of failure of equipment, one of the responsibilities of the master mechanic or of the electrician is the determination of the type of repair that should be made. In the case of larger motors, especially slow-speed motors, it is sometimes practicable to cut out a coil; and this should be done in an emergency. Sometimes it is practicable to install a partial set of coils. Generally speaking, however, this is not advisable, except on very large equipment and in those cases where the failure has been due to lightning. It stands to reason that if the insulation has deteriorated to such an extent that one coil has failed, the other coils must be on the verge of failing.

The mechanical department or the engineering department of any large plant should have some testing equipment. Frequently the manager will want to know if certain equipment can be speeded up or if additional units can be installed. There is no way of determining this, except from reference books or by actual test.

In addition, a test frequently will indicate that the machine needs overhauling if there is a gradual increase in the load on the motor. This may be due to a change in oil or to wear on some part of the machinery. A test may also indicate that the bearings are down and the rotor is beginning to rub. A case of this kind happened in a mill only recently. The motors had not been showing any excessive temperatures. It was impossible to check the air-gap on one particular motor. The electrician, who makes a practice of checking his load on all large motors from time to time, found that the power consumption of two of the motors had increased. He dismantled the motors and found that the rotors were just beginning to rub. Fortunately no damage had been done, but within a few more days this plant probably would have had a repair bill.

A small mill should require only a few instruments—possibly a volt meter, a long test ammeter, and a speed counter or indicator. Large plants should have more elaborate instruments.

No discussion of electrical problems should be considered complete without some reference to safety. This is especially true on 600-volt equipment. Do not work on or permit any of your men to work on live equipment, except in an emergency. If it is necessary to work on 600-volt equipment, there should be someone in the immediate vicinity who knows how to clear the circuit or to get a man off the equipment, in case of trouble.

No one should be permitted to work on 2,300 volts while the equipment is hot, and it is advisable to have two men check the switches to make sure they are open before beginning work. Neglect of these precautions may result in serious injury to one of your men, serious financial loss to your employer, and loss of wages to other employees.

Enemies of Covered-Rubber Yarn

Successfully combatted by correct methods of manufacture and finishing

By CHARLES E. BERGAMINI

COVERED-RUBBER YARN has several natural enemies. However, by taking suitable precautions against these, the yarn manufacturer, the weaver, the knitter, and the finisher will avoid many of the difficulties met with in handling covered-rubber yarns and fabrics made therefrom. These natural enemies include atmospheric oxygen; ozone; sunlight; heat; copper and manganese; oils, fats, and greases; dry-cleaning solvents and spotting agents; and all common rubber solvents. A knowledge of where the menace is likely to appear is important if it is to be combatted successfully.

In the covering operation, atmospheric conditions play an important part in the production of uniform yarns. Temperature and humidity should be held fairly constant by means of automatically controlled air conditioning equipment. An increase in temperature and humidity will increase the ease of stretch of the rubber core. Therefore, with the tension remaining constant, yarns covered at high temperature and humidity have a greater number of turns of wrapping per inch, longer stretch, and less rubber per inch of covered yarn than that manufactured at lower temperature and humidity.

Because rubber shows a loss of resiliency with a lowering in temperature and humidity, yarns covered at low temperatures will invariably have twisted cores. This defect will show up in the dyehouse in the form of badly crinkled skeins should the yarn be skein dyed or bleached. A tendency to produce the rippled effect in finished fabrics is another result of twisted cores. A relative humidity of 60% at 70° F. is recommended for covering when the yarn is to be utilized for weaving purposes. The important thing, however, is to avoid wide variations in conditions. To a lesser extent, atmospheric conditions affect the winding and weaving operations in a similar manner.

The menace of natural oxidation in air has, for all practical purposes, been eliminated through the use of various anti-oxidants. The effectiveness of these compounds holds also on exposure to nascent oxygen in the ordinary bleaching process. Repeated bleaching results in no appreciable damage. Ozone works faster, however, and is encountered wherever there is an electrostatic field. For this reason, all covering and winding apparatus, as well as looms, knitting machines, finishing equipment, etc., should be well grounded.

Covered-rubber yarn goes into bathing suits and other garments which the consumer must handle properly to get maximum service

DETERIORATION from sunlight occurs most frequently during consumer use, although several cases caused by careless exposure of finished fabrics in mills have been brought to the attention of the writer. An exposure of 10 hr. to strong direct sunlight is often sufficient to destroy the elasticity of fabrics made from covered-rubber yarn. Obviously, laundered garments must be dried in the shade. Care must be exercised in mills, especially in the covering process and in the shipping room, to avoid strong light sources. Wet processing is usually carried out in dyehouses which for other reasons, have already been safeguarded against sunlight. For fabrics designed to be exposed to light, such as bathing suit fabrics with an acetate warp and rubber filling, a satin face is advisable, since this affords protection to the rubber by reflecting and dispersing the light rays. Retailers should be cautioned against displaying products containing covered-rubber yarns in unshaded windows.

Accelerated oxidation due to heat is usually confined to the drying operation in the mill. Temperatures in excess of 212° F. on cans or in air dryers are destructive. Too long an exposure in air dryers is the most common cause. Pungent, lachrymatory fumes may be accepted by dryer operators as an indication of over-exposure. Consumers should be warned that careless ironing of garments may cause deterioration.

Minute quantities of copper and manganese act as catalysts in the oxidation of rubber. Dyes, chemicals, and wet processing equipment should be free of these metals. Fabrics dyed with dyes containing copper and manganese, because of the intimate contact of the rubber and the dye, are doomed to a short life. Oils, fats, and greases are rapidly absorbed by the rubber, causing swelling, loss of elasticity, and premature deterioration. The consumer should be warned to avoid the use of sun-tan oils and skin creams and lotions, most of which contain oils or fats that are caused to flow freely by the body heat. Finishers should avoid all softening and sizing materials containing such products. Although in many cases no immediate ill effect is apparent in the finished cloth, actually the life of the fabric has been shortened considerably. As a result, numerous returns are invited.

All ordinary dry-cleaning solvents are also rubber solvents. It follows, therefore, that fabrics containing covered-rubber yarn should not be dry-cleaned nor should they be subjected to dry-cleaner's spotting methods in the mill. Wet cleaning by scouring on jigs, using a pure neutral soap, is recommended. Wet spotting causes irregular shrinkage, and, since most fabrics must be wet out in finishing, it is seldom practiced.

Dyeing Pile Fabrics

Modern methods for handling various types of upholstery and cloaking fabrics

By JOHN C. KOPASZ

THE PROCEDURE EMPLOYED in dyeing pile fabrics is governed largely by the particular type of goods being processed. Thus, the methods used for mohair upholstery fabrics differ considerably from those suitable for long-pile rayon fabrics. Below are outlined dyeing processes which give good results on various classes of materials. In discussing these methods, the writer has placed particular stress on the precautions which should be taken to insure even dyeings and on short cuts which will save time.

After steaming and scouring, mohair upholstery fabrics of light construction are tacked back to back. This is done either by stitching the edges together every yard or so, or by sewing together both edges the entire length of the piece with a loop or running stitch that is readily removed. Generally, twelve-piece lots weighing in the neighborhood of 1,000 lb. are dyed in rope form in single lines. A dyebath ratio of 15:1, approximately 1,800 gal., is customary. If the material has a colored back, which is generally the case, the dyeing is done in an acid bath.

The dyebath is prepared by adding the required dyes (which have been previously dissolved), 3 to 5 gal. of sulphuric acid, and either 75 lb. of anhydrous sodium sulphate or 160 lb. of crystalline glauber salt. British gum, if used, is first pasted up with cold water and mixed until smooth and lumpless before it is added to the bath. To aid in thoroughly mixing the bath, it is advisable to run the lot for 10 min. or so cold before turning on the steam. The temperature is then raised to 190°F. in 1 hr. and held at that temperature for another hour. If additional dye is required, the adds are run at about 190°F. for 20 min., or as long as is needed to exhaust the bath.

Great care must be taken in both the dyeing and rinsing of mohairs to avoid sudden changes in temperature, as, unfortunately, it is a simple matter to mottle mohairs—a condition which is permanent and irremediable. The rinsing is accomplished in one of two ways: (1) by slowly flowing cold water into the tub and letting it overflow until cool, keeping the pieces constantly in motion; (2) by adding 200 to 300 gal. of cold water to the bath, pulling the plug and dropping the bath down to its original volume after 5 min., repeating this procedure until the temperature is down to 100°F., then stopping the reel, draining completely, and giving a fresh water rinse. To prevent bleeding or crocking of the color, the pieces can be after-treated for 15 min. in a cold bath containing 3 gal. of 56% acetic acid and 15 lb. of sodium acetate.

Mohairs with a white back are either cross-dyed or dyed in a union bath. On some styles a white back and a dyed pile are required. In this case, the procedure is as noted above, with or without the use of immunizing or resisting agents to prevent staining of the back. Proper selection of dyes is of paramount importance and has a greater bearing on the final result than the dyeing procedure or technique. When cross-dyeing, either the pile or back can be dyed first. However, it is generally quicker and more efficient to acid-dye the pile, rinse, and then dye the back with direct colors at a lower temperature. The direct colors will usually have less effect on the pile than the acid dyes would have on the back. As a rule, union dyeings are not so fast as cross-dyeings and are more expensive, requiring neutral-dyeing acid colors for the animal fiber. On most unions the bath is made up with from 10 to 20% sodium sulphate and small amounts of penetrating agents. Common salt can be used in place of glauber salt on any shades where there is no danger of unevenness. Dyeing generally is carried out at temperatures from 165 to 180°F.

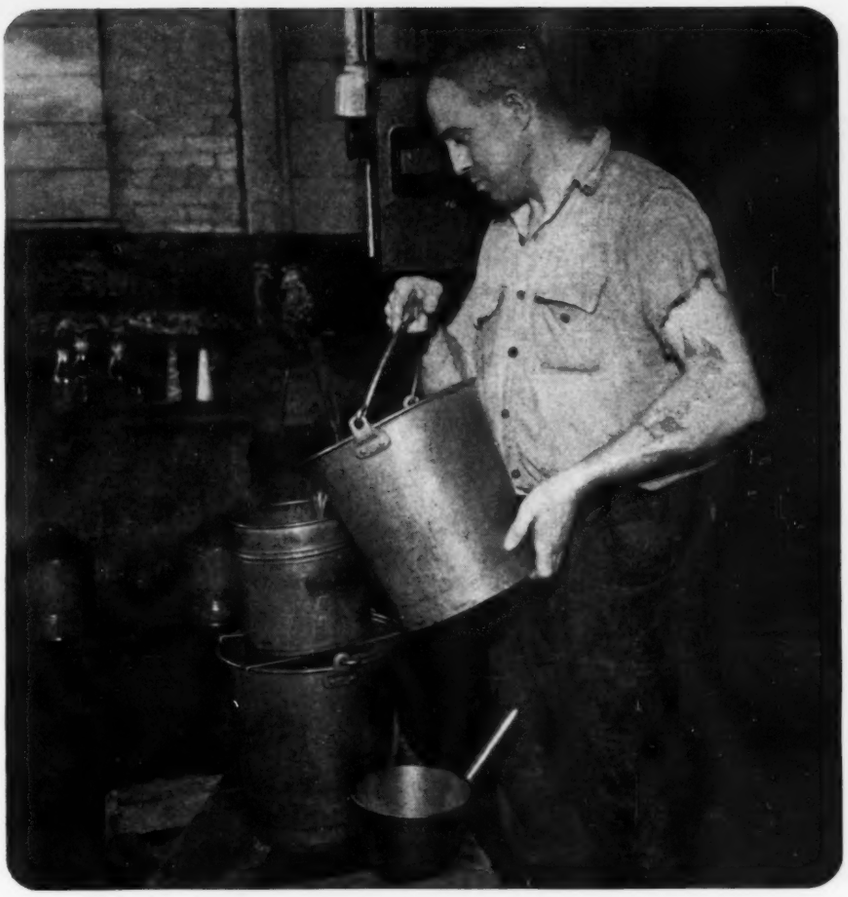
AUTOMOBILE UPHOLSTERY FABRICS are usually made with a blended pile yarn composed of mixtures of rayon, cotton, wool, and mohair in various percentages. A few mills are dyeing these materials on continuous dyeing machines. The technique for padder dyeing varies considerably from mill to mill. Regardless of the mechanical differences, speeds, etc., of the padders, the goods are passed at open width through the hot dyebath in a very short ratio, the color first being squeezed and brushed into the fabric, and then the excess color being washed, brushed, and sprayed off with water. There is little or no advantage in padder dyeing unless long runs are called for, as this method presents considerable difficulty in obtaining the desired shade. However, once a color has been standardized, it is only a matter of control to repeat it subsequently.

At present most automobile fabrics are dyed in rope form in dyeboxes. The cheaper qualities are usually made with two or more pile yarns, and a light cotton back that is rubberized to anchor the pile firmly. No particular attention need be paid to the back when dyeing, as the back usually consists of black or tan sulphur-dyed warp and filling yarns. Generally this type of fabric must be fast to light, and care must be taken in selecting dyes.

To facilitate handling in the dyehouse, the dyes for, say, twenty lots or so are weighed out, dissolved, and then divided into aliquot parts. The dyebath is made up to volume, the dyes are added, and from 10 to 20% of sodium sulphate and 0.2% of a penetrating agent added. All-wool or all-mohair pile automobile fabrics are dyed in a straight acid at 180°F. with 3 to 5% of sulphuric acid and 20% of sodium sulphate.

If, after the first two or three lots have been sampled, it is found necessary to make additions, these can be added to the starting bath, together with the previously prepared dyes. As it takes from 20 min. to nearly 1 hr. to sample, dry, and condition the sample, and make an add, this procedure will result in a considerable saving of time. Also, on the same principle, when a number of lots of the same shade are being dyed, time can be saved by cutting guide samples every half hour and matching them to samples cut from a previous lot at the corresponding time and temperature. Usually, if a lot is dyeing according to expectations after a half hour, and the sample matches the sample cut from a previous lot at the same stage, it is a waste to cut further samples, as normally the lot will finish at the same point as the other. It is also possible at times for the dyer to match a lot while it is still running, and without waiting for a sample, by wetting a corner of his working standard and matching to that.

Freizes are almost always union dyed. However, due to the relative heaviness of this type of goods, more room is needed in the dyebath. Therefore, in a tub holding 1,800 gal (a volume sufficient for twelve pieces of mohair) only six or, at the most, eight pieces



Dyes should be dissolved and strained before they are added to the bath

of freize can be dyed safely. The dyeing procedure for freize with only small percentages of mohair (25% or less) resembles that of cotton velour, as it is possible and advantageous to use direct dyes that stain the animal fiber. Goods with more than 25% of animal fiber require neutral-dyeing acid colors in addition to the direct dyes. In either case, the dyeing is assisted by the addition of penetrating agents. The material is entered into the dyebath, the previously dissolved color is strained into the bath, then 20% of common salt and the wetting agent are added. As there is no danger of wildness or mottling, the temperature is raised to 190°F. in 45 min. (which is as fast as compatible with even dyeing) and held 1 hr.

The washing is done by running cold water into the tub and overflowing until cool, then giving two or three fresh waters. To insure maximum fastness, from 10 to 20% of common salt can be added to each rinse.

On figured freize, where parts of the pile are cut, regardless of the fiber, the cut parts will be much darker looking. Accordingly, when matching a freize sample to some other material, one should always match the sample as a whole. If both fibers are brought to the same shade and depth, the luster and brilliance of the mohair will throw the cotton into a contradistinctive appearance, making the freize look streaky from some angles. Ordinarily, a satisfactory result will not be obtained unless the cotton is actually deeper in shade than the animal fiber. This may not be self evident, but can be verified by pulling apart a piece of freize that appears to be a perfect union and comparing the component fibers. Dyeing of novelty effects, where one of the fibers is left uncolored or where two distinct and different shades are required on one fabric, is mostly a matter of selecting the proper dyes and cross-dyeing.

COTTON PLUSHES of light construction are dyed on reel dyeing machines in double lines. A box with a capacity of 1,500 or 1,600 gal. will hold from 1,000 to 1,200 lb., or approximately 20 pieces. Dyeing is carried out at 180° F. with or without the addition of oil to aid in softening the goods. Generally the bath is made up with small percentages of soda ash, sulphonated oil or other wetting agent, and common salt or glauber salt, in addition to the dyes. The salt is added in small portions every 5 min. until the temperature is up to the required point; then the remainder is added 15 min. later. This is to promote levelness in the dyeing. Blacks or dark shades can be dyed at higher temperatures. Washing of the lot is done by running cold water into the tub, overflowing until cool, and giving two fresh waters. Shades for discharge printing are given several additional washes. Heavy cotton plushes are dyed at open width in a similar manner, with the addition of increased amounts of penetrants.

Rayon plushes, depending on the construction, are dyed in rope form or open width. In some instances, long-pile rayons can be dyed at open width on continuous dyeing machines. Glauber salt is generally used in place of common salt, and no soda ash is necessary. Oil is added in the last rinse water if required.

LONG-PILE RAYONS, when rope dyed, are dyed two in a line. A box holding 1,600 gal. will take 20 pieces. If the long-pile rayons are to be dyed in exceptionally light and brilliant shades, it is sometimes necessary to half-bleach the goods first. A quick and efficient half-bleach can be obtained by running the goods for 30 min. in a cold hypochlorite bath at 1°Tw., using a wooden or cement tub. The excess chlorine is removed by adding sodium thiosulphate or another anti-chlor to the rinse water. Dyeing is carried out with the addition of small percentages of anhydrous sodium sulphate (from 5 to 10% usually). The temperature of the bath is raised slowly to 130°F. and held at that point for 45 in. The temperature is kept low to prevent any great difference in shade between the cotton back and the pile.

If it is necessary to make additions of dye to the bath, immediately after making the additions, the pieces can be opened up by hand for several times around, and then the steam turned on again. This will help to prevent unevenness. For blacks and dark shades, common salt up to 20% is used, and the temperature is raised to 190°F. in 30 min. and held for 1 hr. Delustering, when required, is usually accomplished by adding the delustrant to the last rinse water and then running for 15 minutes at 90°F., with or without oil.

With few exceptions, long-pile mohairs which are to be used for cloaking are bleached prior to dyeing. Dyeing is carried out at 165°F. with 20% of common salt. At times small percentages of acetic or formic acid are used to aid in exhausting the bath. Goods that are to be swirled or stencilled in the finishing are softened before dyeing by boiling for 1 hr. in a weak solution of sal soda.

Silk-pile fabrics are usually dyed at open width on jigs. Dyeing is carried out in a weak acid bath with either neutral-dyeing colors or acid colors, glauber salt, and—for heavy shades where fastness is important—soap.

Roving Frame Time Studies

Simple method of checking efficiency of both machines and operators

By E. H. HELLIWELL

ARE YOU GETTING maximum efficiency in roving manufacture, from both frames and operators? To obtain maximum efficiency, there must be an optimum time for actual machine operation, which consists of doffing, creeling, and piecing; for minor routine work, which consists of cleaning, oiling, picking clearers, etc.; and for resting by the operator.

Determination of time allotment to each of these elements requires a careful time study. Every minute of every operating hour should be accounted for, and a summary of operating data should include the following: (1) percentage of total time spent on each operation; (2) average actual time spent on each operation; (3) comparison of actual operating times with standard times; (4) actual frame efficiency in per cent; (5) actual frame production in hanks and pounds; (6) number of units handled by the frame tender; (7) comparison of units handled with established standards; (8) full information for establishing piece rates for new work; (9) number of ends down and causes for breakage; and (10) comparison with standard end breakage.

All of the above information easily can be obtained with the time-study chart and summary of operating data shown in the accompanying illustrations. An ordinary watch with a second hand can be used for making the time study. A full day's run of eight hours usually is taken, but a shorter period can be taken if it covers a complete cycle of doffing and creeling.

Each square on the time-study chart represents a ¼-min. period. Four vertical squares represent 1 min. The top square represents the first quarter minute; the next lower square, the second quarter minute; and so on until the four vertical squares account for the entire four quarters of the minute. The first quarter of the succeeding minute starts with the top square of the next vertical division. The heavy vertical lines show the 5-min. divisions. Each horizontal division bounded by heavy lines covers a full hour's operation. The summary of the time study, with symbols and headings at the right-hand side permits adding up operating minutes at the end of each hour, and the totals in the vertical column of the summary give the actual time of each operation for the duration of test.

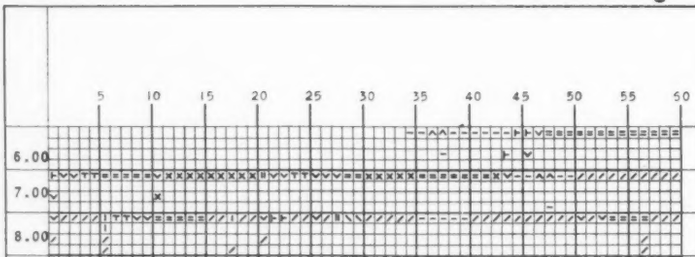
These ¼-min. periods should be used for short-time operations, such as piecing-up. It is necessary only to put an operation symbol in the proper square at the start of the operation. The time squares following are charged to this operation until some other operation begins, when a new symbol comes into use.

The full detailed description of this actual time study made on one operator running two frames on 3.00-hank roving will show clearly the simple method of getting full operating data covering every detail.

The totals of the vertical columns at the right under the operation headings

TIME-STUDY CHART

K..... Mill — 3.00-Hank Roving — Sept. 19, 1939.



	Piecing	Doffing	Creeling	Picking clearers	Cleaning	Oiling	Resting	Walking	Bobbin on rail	Helping others	Marking Roving	Minor operations not listed	Total Min.
6.00		8.						1.5	2.	13.		1.5	26
7.00		4.25	10.		4.		15.5	9.	0.5	14.	1.	1.75	60
8.00	1.25	5.	32.25	2.	2.			6.	2.	8.5	1.		60
9.00	3.75	7.	23.		8.75		1.5	3.	3.	9.	1.		60
10.00	2.5	7.	29.				15.5	3.5	2.5				60
11.00	1.5	7.	35.25	2.	7.75			0.5		5.	1.		60
12.00				2.5	1.		4.5	4.	6.			2.	20
1.00	1.75	6.			4		19.	6.75	2.5	17.		3.	60
2.00		14.		2.	5.		18.	3.5	5.	9.		3.5	60
3.00					5.		6.	3.5				0.5	15
Total Minutes	10.75	58.25	129.5	8.5	37.5		80.	41.25	23.5	75.5	4.	12.25	481
Per-Cent of Total	2.2	12.4	26.8	1.7	7.8		16.2	8.6	4.9	15.7	1.	2.7	100
Average time per operation	0.53	6.85	64.5	2.12									
Standard Times	0.5	17.	87.	3.									

SUMMARY OF OPERATING DATA

K..... Mill — Sept. 19, 1939.

		#1	#2	Derivation of Data
A	Hank Roving	3.00	3.00	
B	Frames per tender 2			
C	Spindles per frame	160	160	
D	Front Roll R.P.M.	160	161	
E	F. R. Diameter	1⅛"	1⅛"	
F	F. R. Circumference	3.534	3.534	E x 3.1416
G	100% Hanks 8 hr.	9.01	9.03	$\frac{D \times F \times min.}{840 \times 36}$
H	Clock reading start	21.1	41.5	
I	Clock reading finish	29.5	50.0	
J	Actual Hanks 8 hr.	8.4	8.5	I-H
K	Per-cent efficiency, Actual	93.3	94.1	$\frac{J \times 100}{G}$
L	Actual Hanks 40 hr.	42.	42.5	J x 5
M	Pounds per frame hank	53.3	53.3	C ÷ A
N	Total Pounds 40 hr.	2239	2265	L x M
O	Lbs. per bobbin on spindle	0.68	0.68	Act. Net. wt.
P	Total bobbins doffed 40 hr.	3293	3331	N ÷ O
Q	Lbs. per bobbin in creel	1.7	1.7	Act. Net. wt.
R	Total bobbins creeled 40 hr.	1317	1333	N ÷ Q
S	Total Units handled 40 hr.	4610	4664	P + R
T	Total Units handled 2 frames	9274		$S_1 + S_2$
U	Standard Units 40 hr. 2 frames	8476		(T ÷ K) x c
V	Per cent Time piecing	2.2%		Actual
W	Per cent Time doffing	12.4%		"
X	Per cent Time helping others	15.7%		"
Y	Per cent Total stop operations	30.3%		V+W+X
Z	Per cent Resting	16.2%		Actual
a	Base pay per frame 40 hr.	$9.00	$9.00	
b	Per cent Time on stop operations	15%	15%	Y ÷ B
c	Base efficiency	85%	85%	100 - b
d	Base hanks	38.2	38.4	c' x G x 5
e	Price per hank	0.2356	0.2356	$a \div \frac{d_1 + d_2}{2}$
f	Actual Earnings per frame	$9.89	$10.01	L x e
	End Breakage per M. sp. hrs.	7.8	6.3	
	Standard Breakage per M. sp. hrs.	6.	6.	
	Back stock defects	2.3	3.2	
	Faulty machine adjustment	0	0	
	Fault of operator	3.2	2.3	
	Caused by other ends	2.3	0	
	Unclassified	0	0.8	

give the total time spent on each operation, which is an important item. It is generally recognized that the amount of rest time allowed for an operator should be about 20% of total time. The time study shows 16% rest time. The time spent helping alley mates to doff will account for the loss of rest time. It is fair to assume that the operator receives as much help as he gives. This cooperation between frame tenders will lessen their actual rest time, but will reduce the frame loss from stoppages, increase the number of doffs, and increase the earnings of frame tenders. A comparison on the chart showing an average doffing time of 6.85 min., as against the standard allowance of 17 min., will indicate the time saved by cooperative doffing.

The comparison of actual average operation timings with standard timings, is made to show that the tender's operating speed was up to standard. An interesting relationship between the operator's efficiency and the frames' production efficiencies should be noted. The frames' efficiencies are governed by the operator's efficiency on the stop operations such as piecing and doffing (and creeling on slubbers). The percentage of the operator's time spent on doffing and piecing was 14.6%. The sum of the two frames' loss from 100% efficiency $(100 - 93.3) + (100 - 94.1)$ equals 12.6%. These two figures should check closely. The difference shown is due to additional running time taken at starting and stopping times and is not included on the time-study chart. From this a frame's average actual efficiency should equal the percentage of the operator's time spent on the stop operations, divided by the number of frames run by the operator, and deducted from 100%.

When a time study is being used for establishing piece rates, care should be taken to use the true base efficiency of the frame and not the actual efficiency shown. The base efficiency is obtained by adding together all time percentages of stop operations (including time helping others), dividing this sum by the number of frames run by the operator, and deducting from 100%. For example:

2.2% piecing + 12.4% doffing + 15.7% helping others = 30.3%.

30.3% ÷ 2 = 15.1%.

100% — 15.1% = 84.9%, the base efficiency.

The reason for including time spent helping others is evident. The operator receives from alley mates, time in return for his time given. This increases the frames' efficiencies, reduces the rest time, and increases the number of doffs and the amount of work done. This margin between base efficiency and actual efficiency should be used as a reward for extra effort. If each frame tender doffed alone, the additional time required would equal or exceed the time spent helping alley mates and the frames' actual efficiencies would not be greater than the base efficiency.

The number of units handled is the best indication of the amount of actual work done. An increase in the size of packages on the spindles or in the creels will decrease number of units handled and lessen frame tenders' work. Increases of 10% in net weight of roving on bobbins often can be made by correct adjustment of bobbin traverse, proper relation between lay and tension gears, and the selection of the proper taper gear.

The established number of units handled will vary in different plants and under different circumstances. Some mills furnish assistance to frame tenders by employing doffers, cleaners, or bobbin strippers, if the number of units handled exceeds 8,000 for 40 hr. A fair time study will show the need for such assistance. If more than 40% of the operator's time is spent in doffing, it may prove profitable to use doffers for the purpose of reducing frame stoppage. If the operator has less than 20% rest time, estimated on base efficiency, some assistance should be given.

The end-breakage test is made on a regular form ruled for that purpose. The summary of the end-breakage test is shown on the operating data sheet which gives a complete history of the study. Nothing will do more to reduce the efficiency and disrupt the morale of frame tenders than excessive end breakage. A time study is worthless if this condition exists. The cause or causes should be determined and remedied if normal quantity and quality of product are desired.

This time-study form easily can be adapted to any process in the mill.

Fig. 1—View in knitting and looping department before new lighting system was installed

Fig. 2—View in same room at Holston Mfg. Co. after lighting system was modernized

Better Mill Lighting

In hosiery plant increases production, reduces spoilage, and improves quality

By L. C. GREENE

Supt. Holston Mfg. Co., Knoxville, Tenn.

OUR NEW LIGHTING SYSTEM has now been in service long enough for us to realize that our money was wisely invested. We are convinced that failure to take advantage of efficient equipment and engineering services to improve inadequate lighting is inexcusable.

Our old system consisted of improperly located fixtures, resulting in a wide variation of foot-candle intensities. In seeking to correct this condition, we sought to avail ourselves of the best in materials and engineering advice, realizing that the installation of a new system would be expensive and should be a one-time job. While first-cost was a consideration, we did not permit it to influence us unduly in selection of equipment. Good light we considered an asset. Poor light is, therefore, a liability, increasing waste, impairing the workers' sight, and slowing up production. Furthermore, these are continuous, not one-time, losses.

The accompanying photographs tell a graphic story. They are both taken in the same room, although from different locations. The conditions shown are typical of the entire room before and after our modernization program was completed. Fig. 1 shows the old system under which we had worked for many years. The fixtures were pulled here and there according to the whims of the individual operatives. A wide variation of intensities resulted, ranging from 4 to 32 foot-candles, 200-watt lamps were mounted in R.L.M. reflectors at various heights and spacings. Light was all directed downward. The ceilings were in shadow and the room was depressing.

A glance at Fig. 2 gives a direct comparison. In this new installation, which gives a foot-candle intensity varying between 35 and 40 on the working plane, the 750-watt lamps are mounted 12 ft. above the floor in 24-in. Glassteel diffusing units. Lights are spaced on 11 x 13 ft. centers. The lighting system was laid out by the Lamp Department of General Electric Co. and installed by Wright Cason Electric Co., Knoxville, Tenn. It was carefully designed to meet the specifications of the wiring code from a legal and safety standpoint.

The wiring is heavier than required by the code in order to prevent no more than a nominal drop in voltage. Light bulbs are selected for proper voltage in order to secure maximum light and life.

PROPER MAINTENANCE of the lighting equipment is an important factor in continued lighting satisfaction. We have found it advisable to wash lamps and reflectors once a month.

Burned-out bulbs are promptly replaced. One man can clean approximately 50 lamps a day, working on a special elevated safety platform mounted on casters and designed to be handled in and out of all working alleys. On this platform; he carries replacements, soap and water, drying cloths, and the simple tools which might be required for adjustments and repairs.

The color of the walls and ceilings has a very definite effect on available light. This is true under both day and night conditions. We took this into consideration, and, when the new system was installed, we painted both walls and ceilings white, recapturing a large amount of reflected light. This gives the room a cheerful atmosphere and helps maintain a high morale.

Current consumption of the new system is 75% above that of the old system; however, the foot-candle tests at the working position of operatives show an improvement of 156%. The fact that the seeing condition was stepped up above the current consumption increase is explained by the fact that the new lighting units are more efficient and are properly located. We are convinced that the new system has increased production, reduced spoilage, promoted cleanliness, bettered our product, and assisted materially in the prevention of accidents.

Controlled Scouring of Wool

New system makes possible improved quality of stock with lowered costs

By HOWARD P. GALLOWAY
Assistant Editor, TEXTILE WORLD

WOOL SCOURING, in many mills, stands as a lonely outpost of a textile industry which has gradually been forced to surrender to an overwhelming army of technological developments. An exception which proves the rule is the East Weymouth (Mass.) Wool Scouring Co. It has now in operation a recently developed complete system of instrument control of wool scouring in otherwise conventional equipment. The new system also includes means for recovery of wool grease and for cleaning of scouring liquors during the operation so that relatively clean solutions are constantly in use.

"Wool scoured by the new method has a better handle, color, uniformity, and strength," said Bryan Leonard, president of the mill, recently, as he sat in his office discussing the installation with the writer. "The important thing," he continued, "is that the system permits uniform control of both process and wool."

Savings made possible by the use of the new instruments, Mr. Leonard declared, result from the improvement in scoured wool quality, from the uniformity of control just mentioned, and from income realized on the increased amount of wool grease which the new method makes it possible to recover.

It is not surprising to find East Weymouth in the van as regards application of new methods for doing old tasks. Its president is himself a technically trained man, having been a Lowell Textile Institute student before and after the World War. He believes thoroughly in continuous modernization of plant and processes, and in cooperative development work with machinery manufacturers and research technicians. To these things, in fact, he gives major credit for the 200% increase in business which his company has enjoyed in the ten year period, 1929–39. The plant now has facilities for handling 40 million pounds of wool a year.

THE FROSTED-WOOL PROCESS is a good illustrative example of cooperative development. Mr. Leonard's mill is now successfully operating what is said to be the first commission wool-frosting installation. In bringing this process from the point at which its possibilities were theoretically proved to the status of an accomplished fact, East Weymouth's president figured prominently. The early machine installed in his plant became a sort of proving ground. Both he and the outside experts who were permitted free access to the mill made numerous changes, additions, and rearrangements which resulted in the ultimate success of the method.

The company's recent installation of instrument-controlled equipment on its scouring bowls is another example of modernization pioneering. For, although there have been a few other installations of the system, it has still the status of a new process not yet well known to the textile industry. The method is a development of American Chemical Paint Co., Ambler, Pa., known as the ACP wool-scouring process. While this company is relatively new to the textile field, it is well known for its work on detergent control in other fields.

Fig. 1. Laboratory for grease, moisture, sediment and other tests

Fig. 2. Settling tank and centrifugal (in front of operative) in which grease and sediment are removed

Three parts, essentially, comprise the controlled scouring system. These are, first of all, the scouring bowls themselves. Practically any conventional set-up is satisfactory, with minor alterations, for application of the instruments, etc., required. At the East Weymouth plant five-bowl trains manufactured by James Hunter Machine Co. and C. G. Sargent's Sons Corp., which were already in place, are being used.

The indicating and measuring instruments comprise the second part of the system. A series of five of these is used to check at frequent intervals various factors which affect the scouring. All the instruments operate at from instantaneous to 15 min., no test requiring a longer period. In this fact considerable of the value of the system lies, because it is possible to obtain the results of the

various tests while the wool is still in the process of being scoured, and to make whatever changes and additions are indicated.

The scouring liquor is checked regularly to determine its content of grease, sediment, soap, alkali, suint, bicarbonates, and free caustic. The wool is tested to determine the amounts of grease, soap, and moisture which still remain in it. The wool grease removed from the wool is tested to ascertain the percentage of water it contains.

The recovery apparatus is the third part of the system. In it grease and sediment are automatically removed from the contaminated scouring liquor, and the clean soap, water, and alkali are returned to the scouring bowls.

The added amount of wool grease which can be recovered with the instrument-controlled method is a factor of importance.

Operation of the recovery system, in general, is as follows: From the scouring bowls the soiled liquor passes to a settling tank. This tank is divided into two (or more) compartments. The top liquor from the bowls passes into one compartment and that from the bottom into the other compartment of the settling tank. Skimmings from the bottom-tank liquor pass from their original compartment to the other one. Then skimmings from the liquor now in the top-liquor compartment pass to a centrifuge especially developed for this purpose by DeLaval Separator Co. In the centrifuge the grease and sediment are automatically removed, at full operating speed. The solution is cleaned as fast as it is dirtied, thus being always in condition for first-class operation of the machines. Small amounts of soap are added at the beginning and throughout the process.

Soaps made during the process are converted to potassium soaps and subsequently used for cleaning the raw wool. It is stated that, if desired, one set of recovery apparatus can be used to clean solutions from two scouring trains. The experience at East Weymouth indicates that best results are obtained if the recovery apparatus is confined to one scouring set. However, liquor from two sets can be cleaned satisfactorily in one recovery unit provided the sets are operated intermittently. The centrifuge installed at Weymouth has a separating capacity of 1,000 gal. or more per hour.

Residual grease in wool scoured by the new method, according to Mr. Leonard, can be controlled to within 1/10 of 1% ±, although for practical operating purposes ¼ of 1% ± is a more conveniently attainable figure. It should be possible to obtain a better ratio of noil to wool with wool which has been scoured by the new method, it is stated. In addition, subsequent dyeing of the stock is improved and the quality of the scoured wool is bettered, as the amount of alkali used is tremendously reduced.

Cost of a complete installation of the scouring-control equipment is about $10,000, and its use is licensed by American Chemical Paint Co. on a royalty basis.

Cutters Want Wider Fabrics

Mills have interest in solving problem

By ALFRED C. ABRAHAMS

FOREMOST among the elements affecting operating costs in the apparel trades is the width of fabrics used. All manufacturers of men's apparel know its importance and relation to labor cost and waste. Because of the small size of the manufacturing units and their lack of organization, little has been done to bring the mills to realize the importance of width and its uniformity as a means of reducing costs and increasing volume.

The first reaction to the question of width will be that the measurement of cloth by the square-inch system prevails, and that the amount per garment remains constant. The wider the cloth, the less is the yardage used; the narrower the cloth, the greater the yardage consumed. With cloth priced on the amount of material in the yard, the cost of the garment remains the same. This reasoning is only partly true, and does not take into consideration the human element, the time element, the extra operations resulting from piecing when cloths are too narrow, and the style element which has decreed larger and roomier garments than those which were worn ten or more years ago.

The cutting up begins with an operation known to the trade as "making a lay"; that is, the proper laying in of the patterns of a given number of sizes in a specified number of yards, so that the amount of waste remaining after the section is cut will be the minimum. When the cloth is wide, the cutter starts with the larger parts first, because he can lay them out quickly. Then he takes the small pieces which he can adjust with reasonable ease and speed, and completes the lay in the yardage allotted. With a narrower piece of cloth the problem of the cutter is more difficult. He automatically proceeds more cautiously, mixing large and small parts at the start. Thus, large and small parts are left for the end, making difficult the adjustment of the pattern to the yardage allowed. More parts must be pieced; the cutter must take more time to make and mark in the lay; and more machine operations are necessary. Thus, higher costs in the cutting room and factory prevail.

Three widths of cloth, two single and one double, are in common use. The two single widths have been increased from 28 to 30 in. and from 33 to 36 in., respectively, and the double width from 54 to 58 and 60 in. Whether these widths are the most desirable ones from the standpoint of the clothing manufacturers is the question. The answer is far-reaching in its interest, because of the growing demand for recently developed lightweight summer apparel for business and sports wear. A real opportunity for constructive study presents itself, not only to the clothing manufacturers, but also to mills and machine builders that are working on fabrics for this field.

The following table of suggested widths for various purposes is offered as a guide to further research:

Use	Suggested Width	Present Width
Suitings	60 in.	54 in.
Trouserings	38 in.	36 in.
Shirtings	38 in.	36 in.
Overcoatings	60 in.	54 in.
Melton jackets	60 in.	54 in.
Overall fabrics	29 in.	28 in.
Trouser pockets	30 in.	28 in.
Trouser pockets	37 in.	36 in.
Body linings	37 in.	36 in.
Body linings	41 in.	40 in.
Silesia pockets	36 in.	36 in.
Vest pockets	41 in.	40 in.
Canvas	22,24,28,40,44 in.	

Abstract of paper presented last month at annual meeting of the Textile Division, American Society of Mechanical Engineers.

Rayon-Yarn Tension Adjustments

Differing frictional resistances of yarns of various types make study necessary

BY C. STANLEY MARSHALL

TO ATTAIN best results in handling rayon yarns, a study of yarn tensions in each process of manufacture is practically a necessity. Each type of rayon has a different frictional resistance from the others, and this fact will result in differing tensions for the various types, even when they are run on the same machine with the same settings. True, this factor will not cause wide variations. But they are sufficient that they should be taken into consideration by those mills which seek highest peak of efficiency.

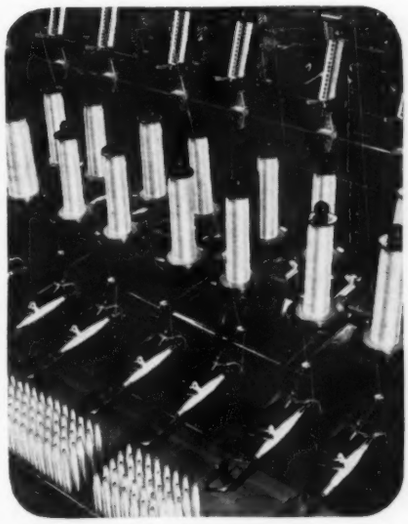
It is not desirable to have yarns with too low frictional resistance. They would not only be difficult to control, but hard cops would slough easily. On the other hand, too high frictional resistance leads to filaments which become broken easily during processing. As in so many other things, the most desirable feature is uniformity.

This difference in surface tension between various types of rayon yarn can easily be demonstrated. For instance, with one yarn on a cop winder, 40 grams tension may have been obtained with four washer weights; but with a second yarn 40 grams tension may require five weights. This indicates that the second yarn has less resistance and requires more control.

It is a common practice for loomfixers to become accustomed to a certain type of rayon being used for filling, and to continue to set shuttle tensions to accommodate this type of yarn when a new filling of the same denier is used. Frequently, this goes on until poor cloth results demand a change. Therefore, it is helpful to pass along information regarding changed tension requirements to loomfixers at the outset. By so doing, one can prevent many slack picks before they start.

Generally speaking, a nice balance is maintained between cop winding and weaving when, by mutual agreement, the low point on cop-winder tensions is about 40 grams. Cops of this tension or higher are safe from sloughing; but a good deal depends upon under what conditions the reading was obtained.

For example, there is always some fluctuation of the tensometer needle



Cop winders afford an opportunity to observe varying frictional resistances of rayon yarns

when it is indicating cop-winder tensions. This is due to changes in yarn speed from the top to the bottom of the build. The less this fluctuation is, the lower the reading that can be used safely without danger of sloughing. Factors which affect the range of needle fluctuation are: (1) frictional resistance of the yarn, (2) spindle speed, (3) type of tension used, and (4) type of wind—whether five or seven.

SPINDLE SPEEDS of 1,900 to 2,200 r.p.m. are common on five-wind, and 2,000 to 2,600 r.p.m. on seven-wind. It is frequently advisable, if there is sloughing at 40 to 50 grams tension, to reduce spindle speed slightly rather than to raise the tensions any higher, especially if the cop winders are rather old. The question of five- or seven-wind is always a debatable subject. Under proper conditions, good results can be obtained with either. Fluctuation is greater on seven-wind, due to its slower traverse, but its effect on uniformity is less.

The type of tensions used also affects the fluctuation of the tensometer needle and the low-tension point at which it is possible to standardize. Many of the new types of tensions being brought out are proving valuable in this respect.

The manner of reading tensometers varies in many mills. Some prefer to read the needle at its highest point, claiming that this conveys true maximum tension. Others read at the center of the fluctuation range. The writer prefers the latter method. For example, while one yarn may have a fluctuation of 5 grams and another a fluctuation of 10 grams, both may have a common center-of-fluctuation reading. Thus, although the top point varies, the center reading does not, and it serves better for obtaining averages on a number of ends.

The reason cop winders have entered so much into this discussion is that these machines afford an excellent opportunity for observation of the behavior of rayon yarns in regard to their frictional resistances. Laboratory methods can be devised, resistances measured, and the results graphed; but such methods are affected by moisture content, which must be taken into consideration when results are transposed to give data that would approximate results obtained under actual operating conditions.

One laboratory method consists of affixing a tensometer in a rigid position, passing the yarn to be tested from its package to the tensometer, and thence on to a reel which will assure constant speed. The reel should be large enough so that accumulating layers of yarn will not build up yarn speed during tests. Accumulated yarn should be cut off every 10 min. or less. A tension is necessary between the package from which the yarn is being wound and the tensometer. Best results are obtained, in showing the differences between two or more yarns, when this tension is about 40 grams.

Moisture content was mentioned above as having an effect on the surface friction of rayon yarn. The following figures give an indication of how much this effect amounts to. Thus, if with a moisture content of 10.9%, tension is 31 grams, tension with the same setting and a moisture content of 11.45%, will be 37 grams; and tension, again with the same setting, but with a moisture content of 12.5%, will be 47 grams.

TEXTILE PERSONALITIES

A COUNTRY BOY who moved from his father's farm to a nearby village where he engaged in the mercantile business; a successful merchant who graduated to textile manufacturing and became one of the most important combed yarn spinners of the South—that is the condensed career-history of Robert Lee Stowe of Belmont, N. C. But his service record of community building is not so easily covered.

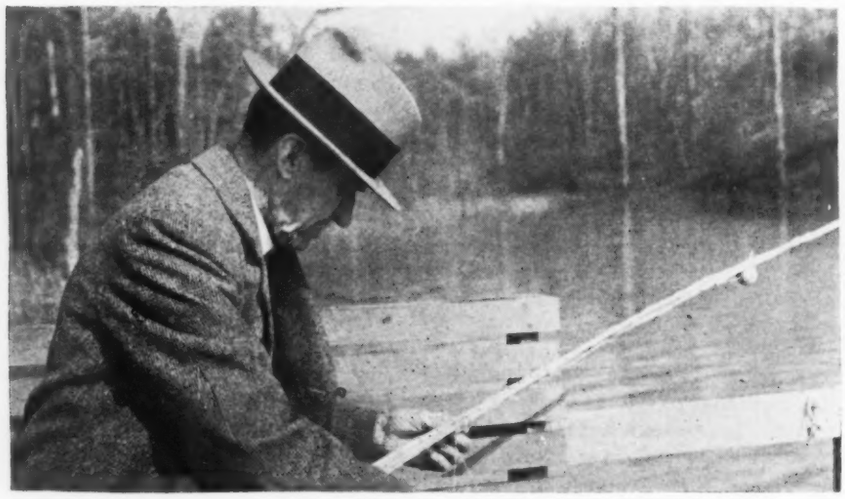
It is a rare man who will consistently devote time to furthering benefits for his fellow citizens without hope of personal reward, yet "Mr. R. L." has done just that. For 25 years he has given one full Monday each month to his county as a member of the Board of Commissioners (a position which is elective) and during 17 of those he has served as chairman.

In his work as an educator, as a promoter of excellent farm-to-market highways, as an industrialist who sought to bring ever-growing payrolls to a poorly paying farm region, he is unexcelled as a benefactor to the community. For it is due to Mr. Stowe's early efforts, more than to those of any other one man, that Gaston County became the great textile center it is, and today the list of cotton mills of which he is either an officer or director is amazing in its length.

Recently, his fellow citizens of Gaston County gave a testimonial dinner for Mr. Stowe. He was eulogized as a school builder, a road builder, a devout churchman, and a great textile manufacturer, but the mute testimony that brought down the house was that of a frayed certificate of stock, owned and displayed by one of the speakers, which was described as representing a farmer's life-time savings, a piece of collateral which had educated eight children, paid hospital bills and funeral expenses; and on many occasions cared for the emergencies of a widow's large family; and today, tattered and torn from many trips to the bank, it still represents full market value! It was one of the original five shares issued in 1901 by "Mr. R. L.'s" Chronicle Mills.

Born in 1866, Mr. Stowe naturally was named for the South's great leader. Community building is his chief hobby. Others are: fishing at his lodge on Catawba Lake, hunting ducks at Currituck Sound, or puttering around his greenhouse where he experiments in growing tropical fruits.

R. L. Stowe



Jerome Newman

A MAN WHO finds sound investment to his critical satisfaction in the textile industry would, to some commentators, be only a myth. That we have such a man in reality reflects credit both on the industry and on the man himself. The man is Jerome Newman, alert and very evidently able to handle a multitude of things at once with accuracy and judgment. His answer to most business problems is good and progressive management, and during the last ten years he has demonstrated this in successfully liquidating or rehabilitating a number of plants. He is now the owner and active president of Algonquin Printing Co., Fall River, Mass.

Mr. Newman first viewed textiles through the eyes of a converter (with Elias Reiss & Co., 1920–1927, latterly vice-president and general manager). Following this apprenticeship, he had close contact with cloth manufacture before completing the circle by joining the ranks of finishers with Algonquin last fall. He was the moving spirit behind a proposed New England fine goods mill merger in 1930 when he had 122 directors representing over 1,000,000 spindles signed up. He also was the purchaser of Merchants Mfg. Co. and Royal Weaving Co.

Mr. Newman successfully sampled management problems outside the textile field in 1933, when he purchased the American Tube Works which he strengthened and later sold to Phelps Dodge Corp. Then, on a free-will choice, he came back to textiles in 1937. From 1927 to date, Mr. Newman has been vice-president and treasurer of the Graham-Newman Corp., New York, a private investment trust.

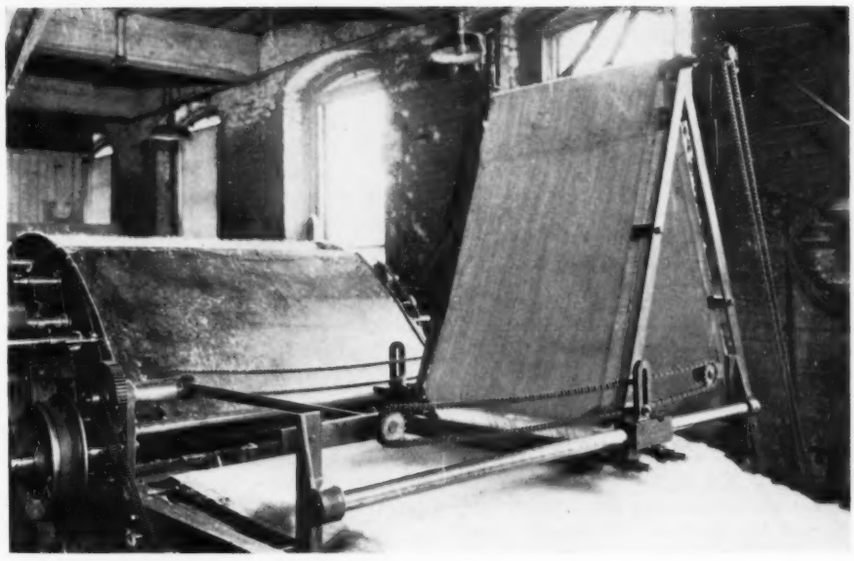
This converter-weaver-finisher-financier is a graduate of University of Tennessee and Columbia College. He is also admitted to the Bar in New York and Massachusetts, but has never practiced. He spent a year in the Navy during the war and rates a foreign service stripe. In college he played baseball, basketball and was on the wrestling team. He has since gone through a golfing cycle to emerge as preferring horseback riding.

TEXTILE EQUIPMENT NEWS

Woolen Card Feed Equalizer

An equalizer for the feeds of woolen and worsted cards has been developed by the Cavedon Textile Machinery Co., Woonsocket, R. I. As the web leaves the doffer comb of the breaker card, it is carried forward in sheet form over a row of belts, which vary from very short lengths on one side of the card to the full width of the desired multi-layer web at the other side. Thus the original web from the breaker card falls down off of these belts in a diagonal direction. The left edge of the web, having shorter belts to travel over, falls down ahead of the right-hand edge, with easy graduations from one edge to the other. The belts run in the same direction as the material passing through the card.

The web falls onto a wide belt underneath, traveling at right angles to the card, and then is raised high to a plaiting device, which lays the web back and forth in folds on the feed apron of the next card, to produce a multi-layer lap of wool to be fed. It is said that this uniform multi-layer lap permits wool to be fed to the following card with extreme evenness. Any irregularities which may show up can be quickly corrected by varying the rate of travel of the plaiter.

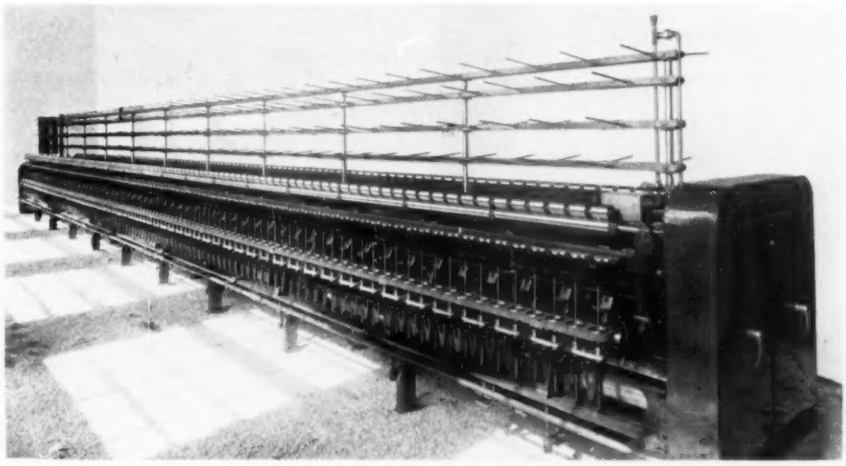


Woolen and worsted card equalizer (Cavedon)

Ring Twister

Recently announced by H & B American Machine Co., Pawtucket, R. I., is the Model G ring twister frame. For convenience of operation, the frame is built with the roller chain only 37 in. above the floor. The machine has a Model B builder with the builder chain increased in size and hardened, to give longer service. The builder drive has a ball-bearing thrust washer which eliminates dwelling at the end of the traverse.

The tension device is reversible, allowing the spindles and cylinder to rotate in either direction. These latter have anti-friction bearings. The machine has a ring-rail release and is specially designed for quick doffing. The cylinder and jack gears are helical cut to insure smooth running and longer life. The bottom roll bearings have Moraine inserts in the steps to eliminate oiling. The new type of traversing thread board insures correct alignment of the yarn guides. The head-end door is furnished with an electrically controlled safety device which stops the motor when the doors are opened. An automatic water-feed control is furnished with the machine.

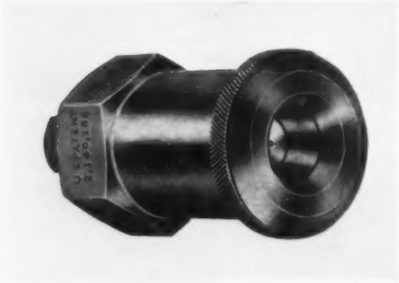


Ring twister (H & B)

Air-Conditioning Equipment

Announced recently by Bahnson Co., Winston-Salem, N. C., is a new high-duty conditioning unit placed in the end of a copper distribution duct. This is designed to increase the capacity of Humiduct air-conditioning equipment, without sacrificing any of the advantages of the unit system. The intake of the conditioning unit extends through a window or wall to the outside and is equipped with an automatic damper control to proportion the amount of recirculated outside air brought into the room. A heating and filter section can be placed in this intake. Cooling in summer is effected by evaporation of water and controlled ventilation.

The Humiduct can be installed according to specific requirements. If humidification only is desired, the humidifier and distribution duct are installed. Where hot water is a problem, the intake to the outside can be added and later the automatic damper control or heating section also can be



Atomizer (Bahnson)

installed. An advantage of Humiduct equipment is the fact that it need be installed only in the specific room or part of a plant where air conditioning is necessary for efficient operation. Where a mill is to be enlarged, units can be added to provide proper air-conditioning in the new part of the plant. It is so constructed that it can be moved and installed in another building if the occasion arises.

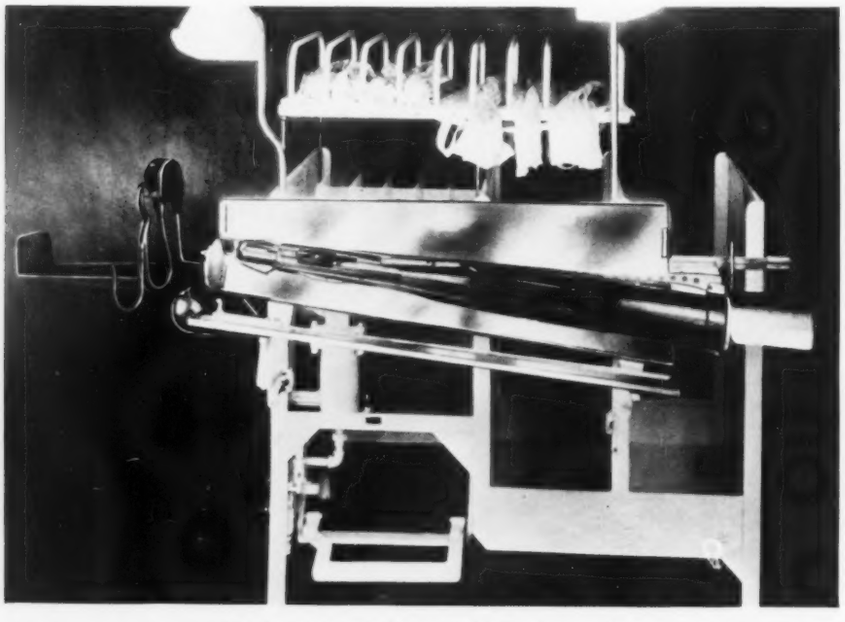
This same company has recently developed the Bahnson-Westaway atomizer. Barely 3 in. long, the atomizer is equipped with special protection that prevents drops and coarse spray. Both the air and the water orifices are automatically cleaned when the atomizer shuts off. Simply by moving a knurled screw and locknut, the capacity can be changed from 6 to 15 lb. The atomizer comprises only 12 parts and can be taken apart with nothing but a pair of pliers. A feature is the cup leather washer used to seal the air chamber, so placed that as the air pressure increases, the washer seals more tightly, thereby adding considerably to its durability. The recommended air pressure is 30 lb. If the pressure falls below that required for proper atomization, the atomizer shuts off automatically.

Automatic Label-Applying Machine

To affix identifying or trade-mark labels permanently to all types of fabrics, Textile Machine Works, Reading, Pa., has developed an automatic label-applying machine. Special thermoplastic coated labels are applied by automatically regulated heat under controlled pressures for a predetermined time interval. Thus labels can be applied to all types and sizes of finished stock under various operating conditions. Outstanding features of the machine are rapidly interchangeable shoes, designed for removal and replacement in a moment's time; fingertip switch control, the touch of a finger sets the machine in action; adjustable label magazine, from ½ to 3 in. in width and up to 2 in. in height; three machine speeds available by changing drive pulley, with four pressure time intervals for each machine speed; self-contained blower unit for supplying air for label separation and vacuum for automatic feed; geared head motor-drive of ⅛ hp.

Hosiery Inspecting Machine

To enable good stockings to be dropped into dye nets immediately after inspection, Edward R. Ammon, Inc., Reading, Pa., has announced a new type of hosiery inspecting machine. This eliminates any further handling until the stockings are removed from the nets for boarding. Two features of this machine are a counting device and a tape separator which enables defective stockings to be replaced without ticket writing. Advantages cited for this machine are lower inspection costs, less handling, and a minimum of pulled threads. The form is covered with unbreakable black glass and is said to be particularly adapted to Nylon because of its extra smoothness.

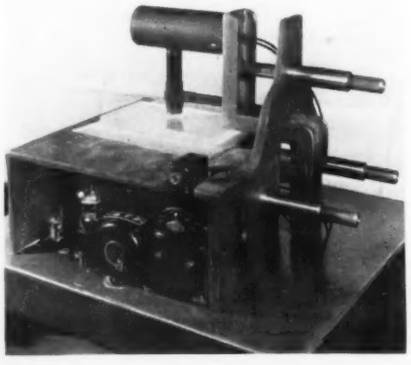


Hosiery inspecting machine (Ammon)

Electronic Pick Counter

R. L. Sjostrom, Everett Mills, Lawrence, Mass., has announced a new instrument for counting the picks per inch in all types of fabrics where the picks per in. do not exceed 150. The device consists of a stationary table on which the fabric is laid and an optical system mounted on a carriage which traverses 3 in. of the fabric. An electric counter counts the number of threads at the rate of 650 per min.

The movable carriage has a light source from which a tiny beam of light



Pick counter (Sjostrom)

0.001 in. wide shines through the fabric. Below the stationary table are a photo tube, amplifier tubes, relay, and geared-head motor. The instrument is 15 x 14 x 11 in.

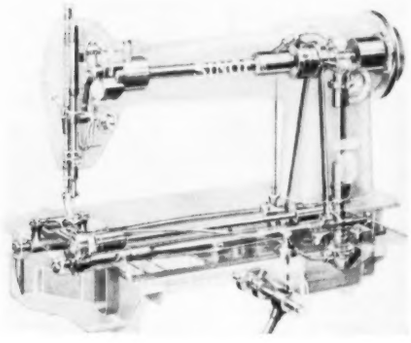
High-Speed Sewing Machine

For single-needle lock-stitching of a wide variety of textile products including sheets, pillow cases, shirts, and clothing, a new sewing machine has been developed by Singer Sewing Machine Co., 149 Broadway, New York. Designated Class 241, the machine is available in three varieties, for light- and medium-weight work, for medium

and medium-heavy work, and for heavy and extra-heavy work.

Top speed of the first two types is said to be 5,000 r.p.m.; that of the heaviest type is given as 4,300 r.p.m. The Class 241 can be adjusted to insert from 7 to 30 stitches per inch, and an easily read indicator permits quick, accurate stitch adjustment. A working space of 11 in. from needle to base of arm is provided.

The machine is lubricated by the force-feed method. A centrifugal pump with which each machine is equipped is designed to deliver oil to all moving parts of the machine and to provide instant circulation the moment the machine is started. Full-floating mounting is another feature of Class 241 machines. A thick cork gasket supports the machine and acts both as a sound-deadener and a seal which prevents oil leakage and dust infiltration.



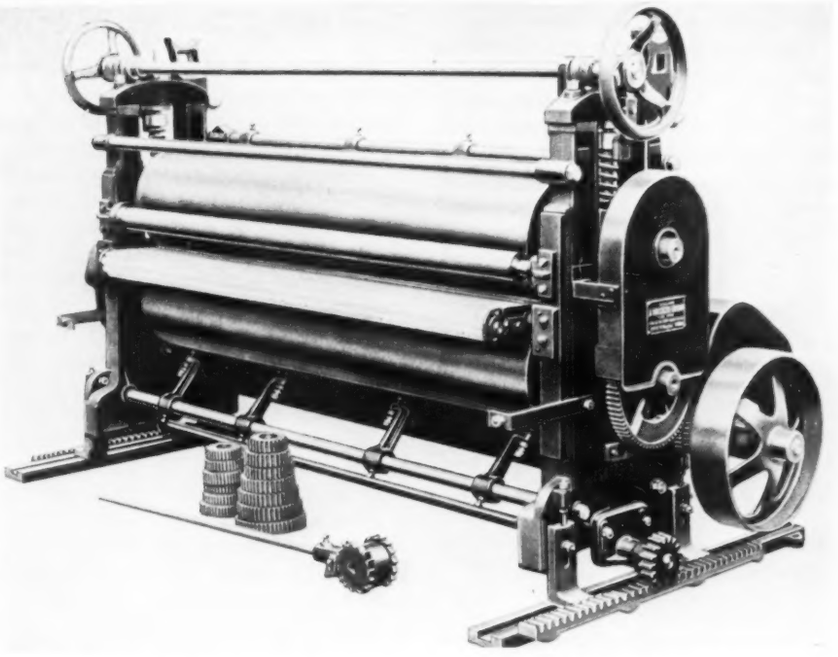
Skeleton view of high-speed sewing machine (Singer)

Superfinished bearings eliminate the necessity for breaking-in—a new machine can be run at full rated speed. This new finish is said to result in long life, freedom from breakdowns, and low maintenance costs.

Crushing Device for Woolen Cards

A device said to improve carding by crushing burrs, hard ends, straw, and other foreign matter without damaging the fiber is being introduced to United States woolen mills by the manufacturers, H. Duesberg-Bosson, Verviers, Belgium, with office at 9 Abbott St., Wellesley, Mass. It is stated that numerous installations of the equipment have been in operation for some time in British textile mills, and that several plants in this country have already placed orders for it.

The apparatus consists essentially of two mechanically driven, smooth-surfaced compression cylinders, placed one above the other, and installed either at the first breaker or intermediate card.



Device for improving woolen carding (Duesberg-Bosson)

The stock is passed in a sheet between the rolls, and, when any material of an increased bulk comes in contact with them, the pressure of the cylinders crush or break it up, with the result that it is easily removed by the action of the next section of the card.

Extensive mill tests have proved, it is stated, that there is no damage to the fiber itself. Advantages claimed for the equipment include improved carding, increased production, definite removal of hard ends, clearer yarns, bettered spinning, and higher cloth strength.

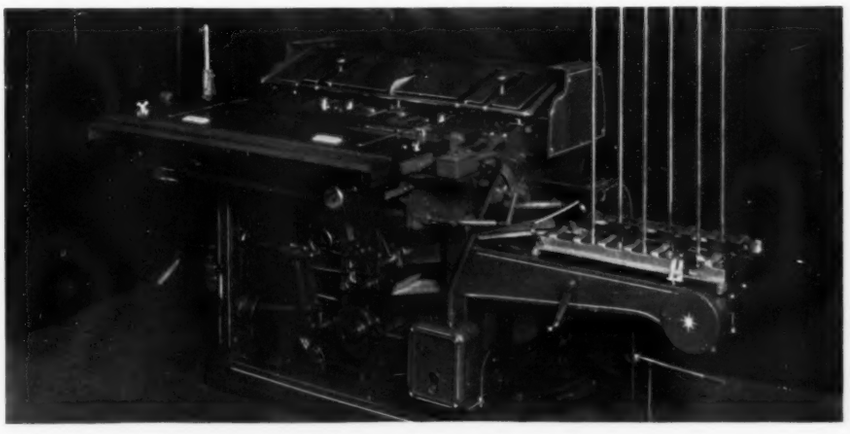
Mechanical Folder

To facilitate folding and counting of terry towels, Rochester Engineering & Centrifugal Division, American Laundry Machinery Co., Cincinnati, Ohio, is introducing a 46-in. folder. The new unit is said to handle articles with a maximum width of $22\frac{3}{4}$ in. and a maximum length of $45\frac{1}{2}$ in. It is stated almost any fold desired can be made, with adjustments for different sizes of folds accomplished quickly, easily, and without use of tools by means of a handwheel.

The counting device is so arranged that towels are automatically counted and stacked in lots of 12, 25, or 50, as desired. Production is said to range from 1,500 to 2,000 doz. per 8 hr. when towels are folded in pairs.

Electro Psychrometer

For instant determination of moisture content in textiles, American Textile Engineering, Inc., Kearny, N. J., has announced an electro psychrometer. Readings on raw material, yarns, cops, tubes, cones, or skeins, as well as on fabrics, are obtained merely by inserting the



Towel folder (Rochester Engineering)

testing feelers into the material to be tested. The needle of the recording meter will then register a numbered division on the recording meter scale. The number thus recorded is converted into actual moisture content by reading from the instrument chart. The time required to make the average test is less than 1 min.

Take-up Roll Covering

Sure Grip, a double-purpose take-up roll covering, has been announced by Quaker City Rubber Co., Frankford, P. O., Philadelphia. This is a strong, stiff material which can be readily glued to either an iron or wooden roll. Advantages cited are strong pull on the fabric, provision of even tension, long life, and resistance to heat and oil.

Singeing Machine for Worsteds

Birch Bros., Inc., Somerville, Mass., has introduced a 4-burner singeing machine for worsteds and similar fabrics. It operates at 75 yd. per min. and singes both sides of the fabric in one run, or all four burners may be operated on one side of the fabric. The burners are of the latest type and are adjustable for several widths of cloth. Each burner has its own adjusting valves and a single lever-operated valve shuts off all burners instantaneously. The machine is equipped with water-cooled guide rolls, folder, adjustable tension, brushes for removing ash, and motor drive. Usually a Kemp carburetor and turbo-compressor are used, to give uniform mixture and pressure independent of variations in the gas supply, and thus insure uniform singeing at all times.

New Metal Coating Process

Expected to hold considerable interest for textile men is a new process for alloying the surfaces of carbon steel sheets and shapes with any one or more of several wear-resistant metals which has been developed by Robert E. Kinkhead, Cleveland consulting engineer. Advantages of the method cited include savings in the cost of coating and improved wearing qualities of the coated metals.

Briefly, the process consists of fusing one or more of several metals into the surface of an ingot or slab of steel by means of a carbon arc. Coatings of any thickness up to 10% of the thickness of the composite metal can be produced. Special equipment required will be the carbon arc machine for fusing alloys, plus certain special acid and annealing equipment not used in production of carbon steel.

Carnegie-Illinois Steel Corp., Pittsburgh, has been granted the first license to produce the new metal; United Engineering & Foundry Co., Pittsburgh, has obtained exclusive rights to manufacture process equipment.

Useful Accessories for Textile Mills

Stop Nuts. Elastic Stop Nut Corp., Elizabeth, N. J., is making nine new types of nuts with a resilient non-metallic collar, which in resisting the entrance of the bolt, forces the thread faces into a pressure-contact which is maintained after the nut is tightened.

Air-Cleaning Equipment. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has announced a new line of redesigned and improved Precipitron electrostatic air-cleaning equipment, in two standard sizes of cells—one with a cleaning capacity of 375 cu. ft. of air per min. and the other with a capacity twice as great.

Electric Switch. The Square D Co., Detroit, Mich., has introduced a new line of unfused Type A double-throw switches having quick make and break, cover interlock, and padlocking divisions for three padlocks in both the off and on positions.

Circuit Breaker. Allis-Chalmers Mfg. Co., Milwaukee, Wis., has announced a new KD-20 switchboard oil circuit-breaker for application to central station and industrial service. It has a 50,000 kva. rating and has three poles arranged one behind the other.

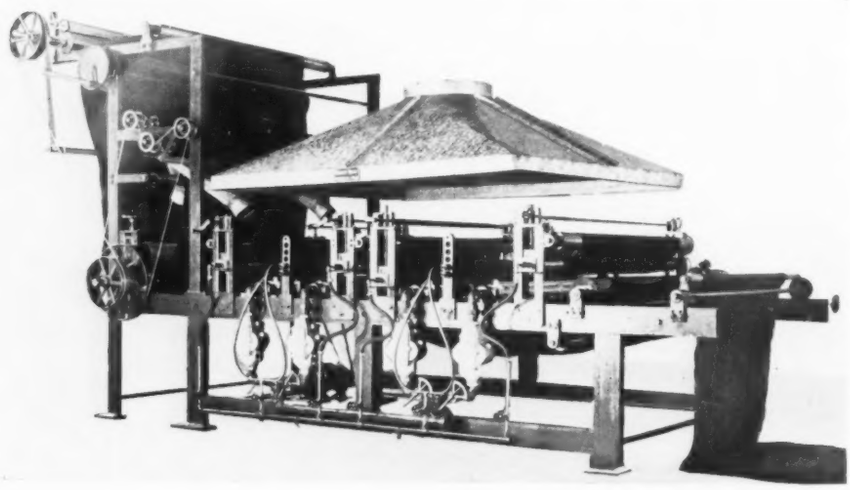
Portable Lighting Outfit. General Electric Co., Lamp Dept., Nela Park, Cleveland, Ohio, has announced a self-contained assembly, accommodating either the clear bulb or the red-purple bulb 100-watt H-4 mercury lamps. The outfit is adaptable for fluorescence, photography, or floodlighting.

Motor Pump. Ingersoll-Rand Co., 11 Broadway, New York, is manufacturing a new pump built in sizes for delivery of from 5 to 1,000 gal. per min. and heads up to 500 ft. It embodies a unit construction with the impeller mounted directly on the shaft of the electric motor drive, and the entire unit is enclosed in a housing which requires no base plate or foundation.

Paint. B. F. Goodrich Co., Akron, Ohio, announces No. 495 Korolac, a new Koroseal paint, which will withstand ordinary concentrations of acids, alkalies and salts, and temperatures of 150° F. Also introduced is a Korolac primer for use with the new paint.

Propeller-Type Fan. Hartzell Propeller Fan Co., Piqua, Ohio, has brought out a propeller-type fan with motor entirely outside of the air stream; it is designed for spray-booth work and for other installations where location of the motor in the air stream is desirable because of the presence of inflammable fumes, extreme heat, or abrasive or corrosive elements.

Carboy Pourer. Lewis-Shepard Sales Corp., Watertown, Mass., in cooperation with the Aluminum Corp. of America, has developed a new safety pourer to handle all-aluminum carboys. With the carboy resting on its face, the pourer is placed over the top and clamped securely by means of a threaded handle just below the shoulder. Then an easy pull on the handle brings the carboy over into pouring position.



Singeing machine (Birch)

New Chemicals

Mold and Mildew Preventive

Development of a new mold and mildew preventive, which is said also to render fabrics antiseptic, has been announced recently by Western Reserve Chemical Co., 1740 East Twelfth St., Cleveland, Ohio. The new product, known as Steriltex, is applied to the goods in the final finishing bath. The manufacturer states that the effect is permanent and that the chemical will not harm either the fabric or human tissue.

Water-Soluble Cellulose Ether

Development of a water-soluble cellulose ether which is believed to have a number of potential applications in the textile industry has been announced recently by Dow Chemical Co., Midland, Mich. The new product, known as Methocel, produces colorless, odorless, transparent coatings which are said to be stable to heat and light. The properties of Methocel indicate that it can be employed as a dispersing, thickening, emulsifying, sizing, and finishing agent. Methocel solutions are compatible with aqueous solutions of soaps, synthetic resins derived from polyhydric alcohols, and most wetting agents. Methocel solutions can also be blended with solutions or dispersions of starch, dextrin, casein, natural gums, glue, and latex. Presence of Methocel is said to increase the viscosity, stabilize the dispersions, and improve the bond obtained from those adhesives. Methocel is available in the form of white fiber containing less than 5% of moisture.

Organic Solvent

Isophorone, a new type of solvent has recently been made available in commercial quantities by Carbide & Carbon Chemicals Corp., 30 East 42nd St., New York. This new product is expected to find a number of applications in the textile industry. Chemically, it is a stable, high-boiling cyclic ketone. It has a rather mild non-residual odor. Isophorone is a powerful solvent for the Vinylite resins. When Isophorone is used as a solvent for these resins in roller-coating formulations, the latter are said to combine the properties of good appearance and of resistance to the chemical action of water, acids, alkalis, alcohol, and of oil and salt solutions. It is also a solvent for oils, fats, gums, basic dyes, etc.

Wax Substitutes

Because of the difficulties of obtaining carnauba, ozokerite, and Japan waxes, Glyco Products Co., Inc., 148 Lafayette St., New York, has introduced substitutes for these products, made from domestic raw materials.

Acrawax, a carnauba wax substitute, has a melting in point of 95 to 97° C.; it is soluble in various hydrocarbon solvents, and is insoluble in water. Ozowax, a substitute for ozokerite, has a melting point of 76 to 85° C.; it also is soluble, hot, in the usual hydrocarbon solvents. Nipocer, a Japan wax substitute, has a melting point of 46 to 49° C. It is soluble in toluol, naphtha, turpentine, etc., and emulsifies with the usual emulsifying agents.

New Publications

Cotton in the South Before 1860

THE COTTON KINGDOM IN ALABAMA, by Charles S. Davis, Ph.D.; Alabama State Department of Archives and History, Montgomery, Ala.

Professor Davis, who is in the History Department of Alabama Polytechnic Institute, has drawn on his store of Alabama history for the basis of this interesting volume. He devotes a chapter each to the various phases of his State's old-time cotton kingdom, quoting extracts from many plantation ledgers and diaries of the slave market, the cotton factorage game, and other pertinent factors. The record is made even more comprehensive by the addition of excellent graphs and maps, and especial mention should be given the bibliography, which in itself is valuable to the student.

Primarily the book is a history, but some parts of it should be helpful to those who have a leaning toward economic analysis. It is certainly a valuable addition to any library and should appeal to all associated with the cotton industry. For ourselves, we sigh regretfully, for, unfortunately, the record ends with the Civil War, and we hope Professor Davis will give us a second volume covering the 80 years from 1860 to date.

Ironical Transition in the Low Country

A SEA ISLAND LADY, by Francis Griswold; William Morrow & Co., New York; $3.00.

An unforgettable, and sympathetic novel of the Carolina low country is this story of Beaufort, Charleston and the neighboring Islands. Although it actually spans three generations, it is as timeless as the section it portrays for Francis Griswold has caught the spirit of the South as it has always existed.

His Sea Island Lady is a reconstructed Yankee who came South in the 1860's to help free the negroes, and who remained to live among them as mistress until her southern children and husband were buried, and her southern grandchildren were married.

She knew the rocketing fortune made in phosphate mining; she learned the ups and downs of the Sea Island cotton crop—and finally when the boll weevil destroyed it entirely, she followed the lead of many genteel southern ladies and opened her home to rich Yankee tourists.

On the surface this is the story of a lady with as much gumption as, and more heart but less sparkle than, the fascinating Scarlett; but actually it is the ironical story of the transition of low-country plantations, held for generations by southern families, into the hands of rich Yankees, who wish to ape the mode of living which their fathers long ago destroyed.

Cotton Statistics

ANNUAL COTTON HANDBOOK, 1939; Comtelburo Ltd., London and New York; $1.00.

The 69th issue of this annual comprehensive record of world cotton contains particulars of all growths of cotton for which figures are obtainable, and gives world-wide statistics. It covers daily cable reports of American cotton, East Indian and Egyptian crops, together with Liverpool, Brazilian, Continental, and other statistics. There are blanks for insertion of 1940 figures.

Specifications and Tests

A.S.T.M. STANDARDS ON TEXTILE MATERIALS: American Society for Testing Materials, 260 S. Broad St., Philadelphia; $2.

The 1939 edition of this book con-

tains, in full, the 53 standards established to date by Committee D-13. Appended to the manual are four sections covering photomicrographs of common textile fibers, yarn-number conversion tables, psychrometric tables for relative humidity, and a glossary of terms relating to textile materials. Five proposed methods published for information and comment pertain to correction of breaking strength to standard regain, test for accelerated ageing of textiles, quantitative determination of Tussah silk in mixtures with other fibers, quantitative analysis of textiles composed of wool and Lanital, and test for shrinkage of grease wool. In addition, the volume contains abstracts of eight important papers presented at recent meetings of the committee; five are on spun rayon.

News of Suppliers

Foster Machine Co., Westfield, Mass., announces that Fred P. Brooks, who for the last few years has represented several equipment manufacturers in the South, has severed his other connections in order to represent Foster exclusively. He will cover Georgia, Alabama, Tennessee and part of South Carolina. His address is 406 South Candler St., Decatur, Ga.

Hercules Powder Co., Wilmington, Del., Naval Stores Department, announces the transfer of Frank U. Rapp from Charlotte, N. C., to the home office in Wilmington, where he will be supervisor of Hercules pine-oil sales. Willis A. Haines, formerly located in the Chicago office, succeeds Mr. Rapp in Charlotte as sales and technical service representative for Hercules' naval stores products serving the textile industry in the South.

J. S. Fallow & Co., New Bedford, Mass., have been appointed sales representative in New England States and Canada for C. B. Johnson Machine Works, Paterson, N. J., rayon slashers and sizing machines as well as humidifying equipment, and also for Sipp-Eastwood Corp., Paterson, N. J., high-speed creels and warpers, redraws, winders, tensometers and special preparatory machinery. Mr. Barnes who formerly represented Charles B. Johnson in New England, remains with Charles B. Johnson in another capacity.

E. H. Jacobs Mfg. Co., Danielson, Conn., has licensed the J. C. McLaren Belting Co., Montreal, Canada, to produce the complete line of Jacobs reinforced canvas lug straps, reinforced hairy leather check straps and other products, with full manufacturing co-operation and interchange of personnel.

Textile Machine Works, Reading, Pa., from Dec. 13 to 16, held its annual exhibit of personal Christmas presents made by their 200 apprentices during their spare time. A high degree of craftsman skill is shown in these articles of iron, steel, bronze, pewter and silver.

General Elertric Co., Schenectady, N. Y., has expanded its loan-library of educational motion pictures, and issued a catalog of the 79 films now available through 12 distribution points covering the entire United States. There are two specifically textile films, No. 28, "The Land of Cotton" and No. 32, "A Woolen Yarn," one reel each.

Sixth International Heating and Ventilating Exposition will open at Lakeside Hall, Cleveland, Ohio, on Jan. 22 with exhibits from 300 manufacturers. It will run until Jan. 26.

National Starch Products, Inc., New York, is expanding export business from its New York and San Francisco offices as a result of current European events which affect the export set-up in connection with its Dutch and British plants. Frank Greenwald, president of the company, is making an airplane trip though the Central and South American countries. National Starch Products has transferred Raymond T. Clarke, of its textile sales division, from New England to the Greenville, S. C. section. Mr. Clarke hails from Anderson, S. C., and is a Clemson graduate.

Textile Testing & Research Laboratories, New York, has appointed David Friedman, a Lowell Textile School graduate, to be service manager of the wool goods division. Mr. Friedman was recently with L. Bachmann & Co.

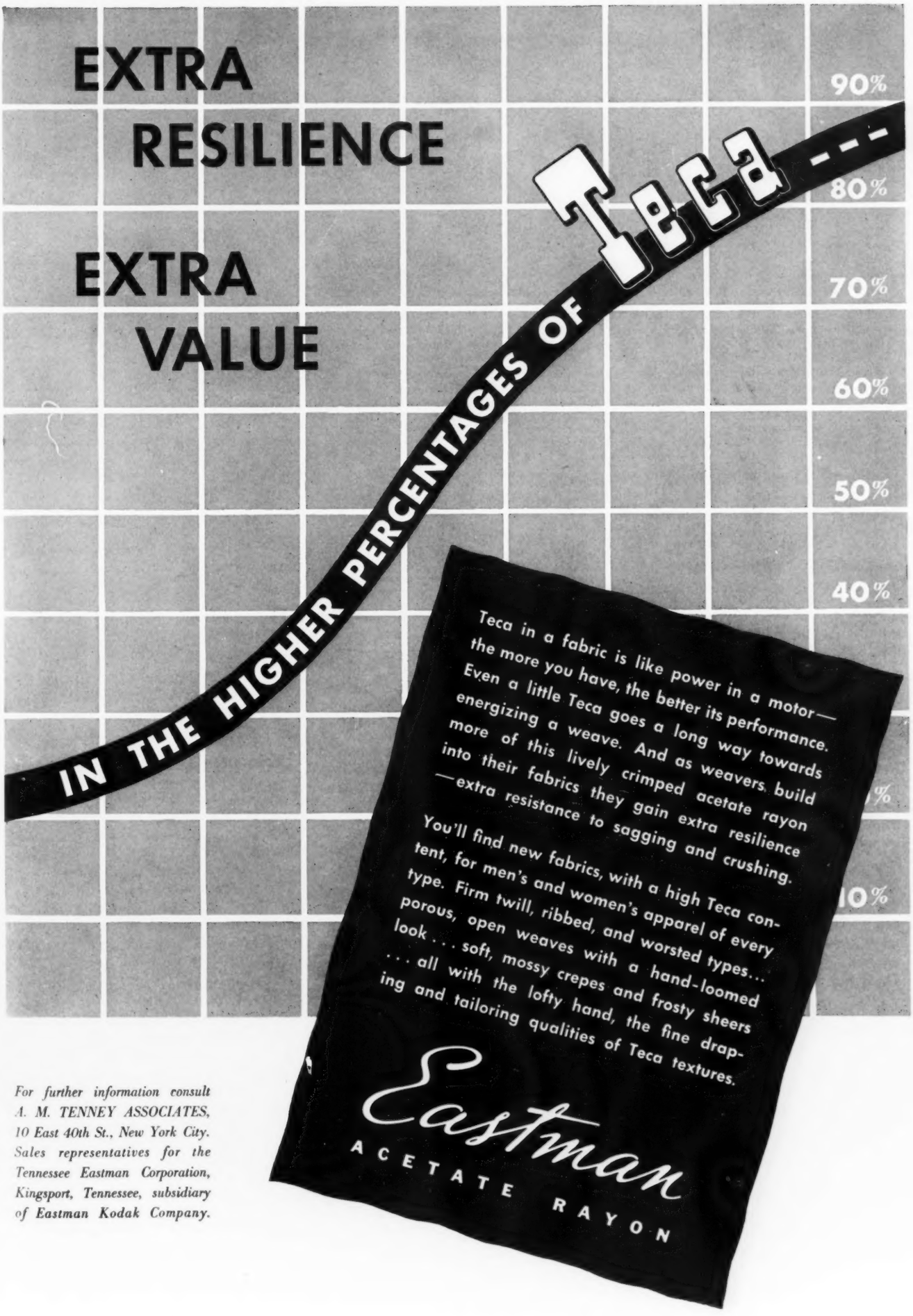
Sheffler-Gross Co., Philadelphia, has appointed George F. Bertrand as sales engineer.

Republic Steel Corp. has appointed C. W. Ruth as director of advertising. He succeeds Stanley A. Knisely, who has become executive vice-president of Associated Business Papers.

Carolinas and Virginia Purchasing Agents Association elected R. C. Haberkern, vice-president of R. J. Reynolds Tobacco Co., as its president at the annual meeting in Charlotte, Dec. 8 and 9. He succeeds C. W. Coker, Hartsville, S. C., who becomes the association's national director.

American Leather Belting Association elected Ernest D. Key of Atlantic

"The Electric Motor of Tomorrow"—A completely Fiberglas-insulated motor in a standard (No. 254) 5 hp. frame size is shown at the left delivering, consistently, the same power as the standard (No. 324 frame size) cotton-wound 10 hp. motor at the right. The two motors are hooked up to a dynamometer through a coupling and the load may readily be alternated between one and the other. The small motor is some 160 lb. lighter in weight and 45% smaller in volume. Exhibit is sponsored by Owens-Corning Fiberglas Corp.


EXTRA
RESILIENCE
EXTRA
VALUE
IN THE HIGHER PERCENTAGES OF Teca
90%
80%
70%
60%
50%
40%
Teca in a fabric is like power in a motor—the more you have, the better its performance. Even a little Teca goes a long way towards energizing a weave. And as weavers build more of this lively crimped acetate rayon into their fabrics they gain extra resilience —extra resistance to sagging and crushing.
You'll find new fabrics, with a high Teca content, for men's and women's apparel of every type. Firm twill, ribbed, and worsted types... porous, open weaves with a hand-loomed look . . . soft, mossy crepes and frosty sheers . . . all with the lofty hand, the fine draping and tailoring qualities of Teca textures.
Eastman
ACETATE RAYON

For further information consult A. M. TENNEY ASSOCIATES, 10 East 40th St., New York City. Sales representatives for the Tennessee Eastman Corporation, Kingsport, Tennessee, subsidiary of Eastman Kodak Company.

Goodyear Tire & Rubber Co. is manufacturing 20 miles of 36-in., 6-ply belting for the world's longest conveyor belt system which will be used to move gravel and sand 9.6 miles from Redding, Calif., to the site of the Shasta Dam. The belting fabric was woven by Callaway Mills, La Grange, Ga., and consumed 1000 bales of long staple cotton. Goodyear used 1,000,000 lb. of rubber for the finished belting. Above is pictured typical installation, now in use at Permenente, Calif., which is identical with the 26 units covering the 9.6 mile distance previously mentioned. Operation of the Shasta system will begin April 1 and at speed of 550 ft. per min. will deliver 1100 tons per hour. It will be in use for four years during the dam's construction.

Belting Co., Atlanta, as president on Dec. 12 in New York. Geo. L. Abbott, Graton & Knight Co., was made 1st vice-president and Preston Baldwin, of Baldwin Belt & Leather Co., 2nd vice-president. J. L. Nelson was reelected secretary.

Link-Belt Co., Chicago, has appointed Ralph M. Hoffman, vice-president and sales manager of Link-Belt Co., Pacific Division, to be assistant to the president of the parent organization, with headquarters in Chicago.

Saco-Lowell Shops, Biddeford, Me., held their annual employee party in November at Cascade Lodge. David F. Edwards, president, was guest at the banquet on the invitation of the shop committee. Entertainment was furnished by talent among the employees.

Arnold, Hoffman & Co. has appointed W. Chester Cobb as manager of the North Carolina territory succeeding Frank W. Johnson, who has retired. Mr. Cobb's address is Box 1268, Charlotte, N. C. The warehouse is at 310 Third St.

A. C. Lawrence Leather Co. has removed its New York office to 261 Fifth Ave.

Labor Relations Associates, Inc., 230 N. Michigan Ave., Chicago, has been established to offer the service of specialists as an aid to employers in their relations with employees.

James F. Lincoln Arc Welding Foundation, Cleveland, Ohio, is sponsoring a 2½-year program involving payment of $200,000 in 458 awards to be made for studies of arc welding practices which result in social, economic or commercial benefits.

Goodyear Tire & Rubber Co. introduced yarns made from chlorinated rubber (Tensolite) and fabrics coated with the same (Pliosheen) at the "Rubber Ball" at Akron, last month.

Paul Torchiana, lately vice-president of Collins & Aikman Corp., **F. Eugene Ackerman,** recently vice-president of Julius Forstmann Corp., and **A. W. Drobile,** textile engineering consultant of Philadelphia, have taken offices at 18 East 41st St., New York, to function in textile merchandising, engineering, public relations, etc.

Standard Pressed Steel Co., Jenkintown, Pa., makers of Hallowell shop equipment and Unbrako socket screw products, are erecting a 140 x 80 ft. addition to their main plant.

Manning, Maxwell & Moore, Inc., Bridgeport, Conn., makers of pressure gauges, safety valves, thermometers, and globe valves, have promoted Louis H. Brendel, previously assistant sales manager of the Hancock Valve Division, to assist C. H. Butterfield, general sales manager of the company.

National Industrial Advertisers Association recently granted a charter to its 20th Chapter, the Industrial Advertising and Marketing Council of Western New England. E. V. Creagh of American Chain & Cable Co., Bridgeport, Conn., is president. G. P. Lonergan of Bristol Co., Waterbury, Conn., is chairman of publicity committee. Principal speaker at the charter presentation meeting was David Beard, manager of Direct Mail Dept., McGraw-Hill Publishing Co., New York.

Textile Laboratory has been established by Fred A. Mennerich at 42 Roosevelt Ave., Jersey City, N. J., to specialize on microscopy and photomicrography for investigation of routine and research problems, in the textile field. Included are fiber identification, wool grading, denier analysis, textile defects, and constructions. Mr. Mennerich has been chief microscopist at United States Testing Co. for four years. He has equipment for photographing magnifications from 2 times to 3000 times.

A. Dishington & Co., Inc., New York, has been formed to continue the business of A. Dishington and to engage in exportation of textile machinery, mill equipment, supplies and raw materials to Latin America.

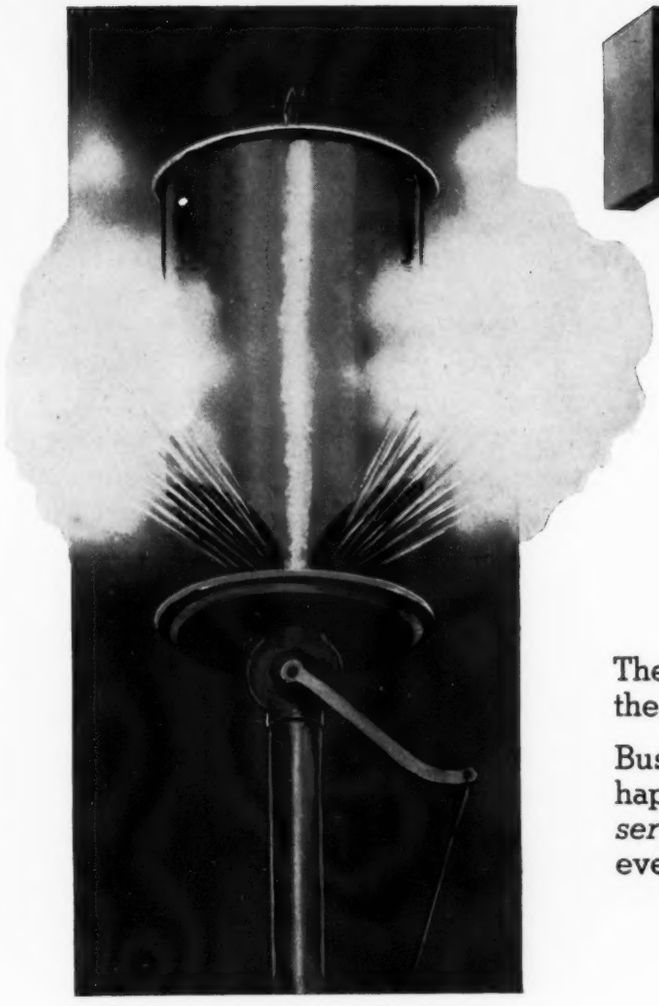
E. P. Heckel & Associates, Chicago, consulting engineers, have been established by E. P. Heckel, for many years identified with general air conditioning, refrigeration and industrial process engineering work, in association with Samuel R. Lewis, with offices at 407 South Dearborn Street. Mr. Heckel's New York associate is Harry Boyd Matzen, 185 Madison Ave. Mr. Lewis will continue his consulting business as heretofore in his own name.

Wabash Appliance Corp., Brooklyn, N. Y., has acquired complete control of Birdseye reflector lamps, and will market these nationally along with their Superlite light conditioning bulbs and Superflash photolamps.

Eastman Tells Its Story

A book which merits particular mention as a good job in consumer relations and public relations is Tennessee Eastman Corp.'s "The Story of Eastman Acetate Rayon," just off the press. The book photographically illustrates the process of manufacturing acetate rayon, and includes a chart showing the manufacturing steps. Fabric swatches at the back of the book are examples of the versatile effects which can be obtained through the use of Eastman acetate rayon or Teca staple fiber, either alone or in combination with other fibers. The covers of the book are laminated with Kodopak, a cellulose acetate sheeting made from the same basic substance as the acetate rayon. The transparent pocket holding the swatches is also made of Kodopak. As is to be expected in an Eastman booklet, the photographs are superb.

The book will be distributed without charge to the heads of college home economics departments, and to advertising managers, fabric and dress buyers, and supervisors of educational departments in department stores.



1940

means BUSINESS

The whistle has blown. . . Time to go to work—the American way.

Business means employment . . . payrolls . . . happiness. At SONOCO, Business also means *service* from a dependable source of supply for everything in textile paper carriers:

CONES
TUBES
CORES
CORK COTS
ROVING CANS
UNDERCLEARERS

SONOCO starts their 41st year in business with a determination to achieve an even more important position of service in their chosen field.

SONOCO MAKES *EVERYTHING* IN *PAPER CARRIERS*

sonoco
SERVES THE WORLD
PAPER CARRIERS

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. | HARTSVILLE S. C. | MYSTIC CONN.

DEPENDABLE SOURCE OF SUPPLY

FREE FOR THE ASKING

Readers interested in literature reviewed on this page may secure copies by writing to Textile World, 330 West 42nd St., New York, giving their company connection, title of item desired, and date of issue in which it was reviewed.

Flow Meter. Cochrane Corp. Illustrated leaflet describes company's electric flow meter for measuring the flow of steam, gases, water, or other liquids. Device is said to be actuated by a float movement of as little as 1/1,000 in.

Textile Testing. Hatch Textile Research, Inc. Revised list gives prices of 30 types of textile tests which this organization is equipped to carry out.

Paints. B. F. Goodrich Co. Four-page Catalog Section 9770 describes line of Acidseal paints, which are derived from rubber by a process developed by this company. The product is said to give textile-mill interiors protection against humidity and also to protect laboratory equipment, mixing drums, and other machinery.

Pressure Vessels. Alco Products Division, American Locomotive Co. Leaflet describes in pictures company's pressure vessels for a variety of services; also contains data on and illustrations of heat exchangers produced by this firm.

Tips on Welding. Lincoln Electric Co. Booklet titled "101 Welding Ideas for Low-Cost Maintenance" illustrates and describes wide variety of money-saving repair, fabrication, and structural application of arc welding.

Picker and Willow. Proctor & Schwartz, Inc. Data sheet pictures and gives information concerning above-named equipment with ceiling suction condensers; figures given include production rates, space required, shipping weight, etc.

Socket Setscrews. Bristol Co. Catalog describes characteristic features of company's line of socket setscrews and capscrews, and points out their advantages.

Mixers. Eppenbach, Inc. News bulletin describes company's Homo-Mixer, and lists a number of uses to which it can be put, including mixing of textile dyes and production of emulsions of various types.

Parts Storage. Wheaton Machine Works. Folder illustrates and describes stationary and revolving bins for storage of numerous small items.

Finishing Equipment. Riggs & Lombard, Inc. Illustrated, 8-page folder pictures and briefly describes 20 types of machines made by this company; included are a list and schematic illustrations of 30 machine improvements originated by the company.

Desizing Products. Pabst Sales Co. Booklet outlines commonly used cotton-textile-mill processes, with emphasis on desizing and the benefits to be derived therefrom. Included are data on types of sizes used on cotton, rayon, and silk; a discussion of the need for desizing; data on characteristics and uses of company's desizing product, Exsize; and a flow sheet showing various procedures used in cotton and rayon finishing plants.

Lathes. South Bend Lathe Works 112 page catalog, designated No 100, describes 75 different sizes and types of lathes for industrial use.

Electrical Devices. General Electric Co. Air circuit-breaker protection for textile mills is the subject of illustrated leaflet GEA-3203. General-purpose, automatic time switches for control of electric circuits on schedules related to the time of day are described in Bulletin GEA-3339.

Lubrication. Standard Oil Co. December, 1939, issue of *Esso Oilways* contains an article describing the manufacture of jute yarns; another short item describes how oil stains on handkerchiefs were eliminated in one mill.

Storage and Mixing Equipment. U. S. Stoneware Co. 8-page booklet describes company's line of equipment for storing and mixing acids and corrosive chemicals. Included in the descriptions are tanks, jars, pots, trays, and vessels of other types.

Power - Factor Improvement. General Electric Co. 16 pages are devoted to describing what power factor is and how it can be improved, in Bulletin GEA-3225.

Synthetic Resins. Rohm & Haas Co., Inc. Leaflet No. 5 of a series discussing applications of company's RHoplex Resin contains formulas for use on spun-rayon dress goods, spun-rayon and acetate mixtures, cotton lawns, and fine-cotton stablized dress fabrics.

Corrosion - Resistant Piping. Crane Co. Circular No. 312 contains 54 pages of photographs and descriptions of company's corrosion-resistant valves and fittings. Included is a listing of nearly two hundred chemical solutions used in process manufacturing and a chart indicating metals which will best resist corrosion by each solution.

Fluorescent-Lighting Fixture. Hygrade Sylvania Corp. Two recent bulletins describe company's products for fluorescent lighting, one relating to its Miralume HF-100 unit, the other describing the Miralume HF-200 unit.

Textile Oils. E. F. Houghton & Co. October-November, 1939, issue of *The Houghton Line* contains an article describing the company's products for oiling wool, and another on softening oils for use in connection with sanforizing.

Electric Lamps. Birdseye Lamp Sales Division, Wabash Appliance Corp. Bulletin No. 107B gives specifications and price data on several types of reflector lamps for direct and indirect lighting; also for standard lamp types, and for swivel sockets.

Paints. New Jersey Zinc Co. First issue of *Paint Progress* gives information in non-technical language on painting wooden exteriors, water tanks, and other surfaces.

Handling Government Contracts. Fidelity and Deposit Co. 80-page booklet describes matters of procedure under government contracts from the time the bid is prepared through to the settlement of any claims which may arise.

Drives. American Leather Belting Assn. Comprehensive, spiral-bound volume describes automatic tension control, short-center, pivoted-motor, leather belt drives; included are numerous pictures illustrating uses in textile and other industries, and a variety of data sheets pertaining to the developments of members of the Association.

Humidifying System. Spray Engineering Co. Leaflet describes humidifying system manufactured for industrial plants, and describes company's free planning and estimating service.

Pumps and Gas Engines. Worthington Pump & Machinery Corp. Two bulletins Nos. W-321-B14 and W-322-B1D describe company's Monobloc pumps and contain data on ratings. Bulletin S-550-B15 describes totally-inclosed, vertical, four-cycle gas engines manufactured by this company.

Wood Preservation. American Lumber & Treating Co. Illustrated booklet describes use of Wolmanized lumber in various industries; textile applications include roofs and floors in weave sheds, rayon spinning mills, dyehouses, bleacheries, printing plants, and other departments where high humidity is encountered.

Stop-Motions. Rhode Island Warp Stop Equipment Co. Illustrated booklet shows views of looms equipped with company's electrical warp stop-motions; contains tabular data on types available, electrode spacing, over-all length, etc.

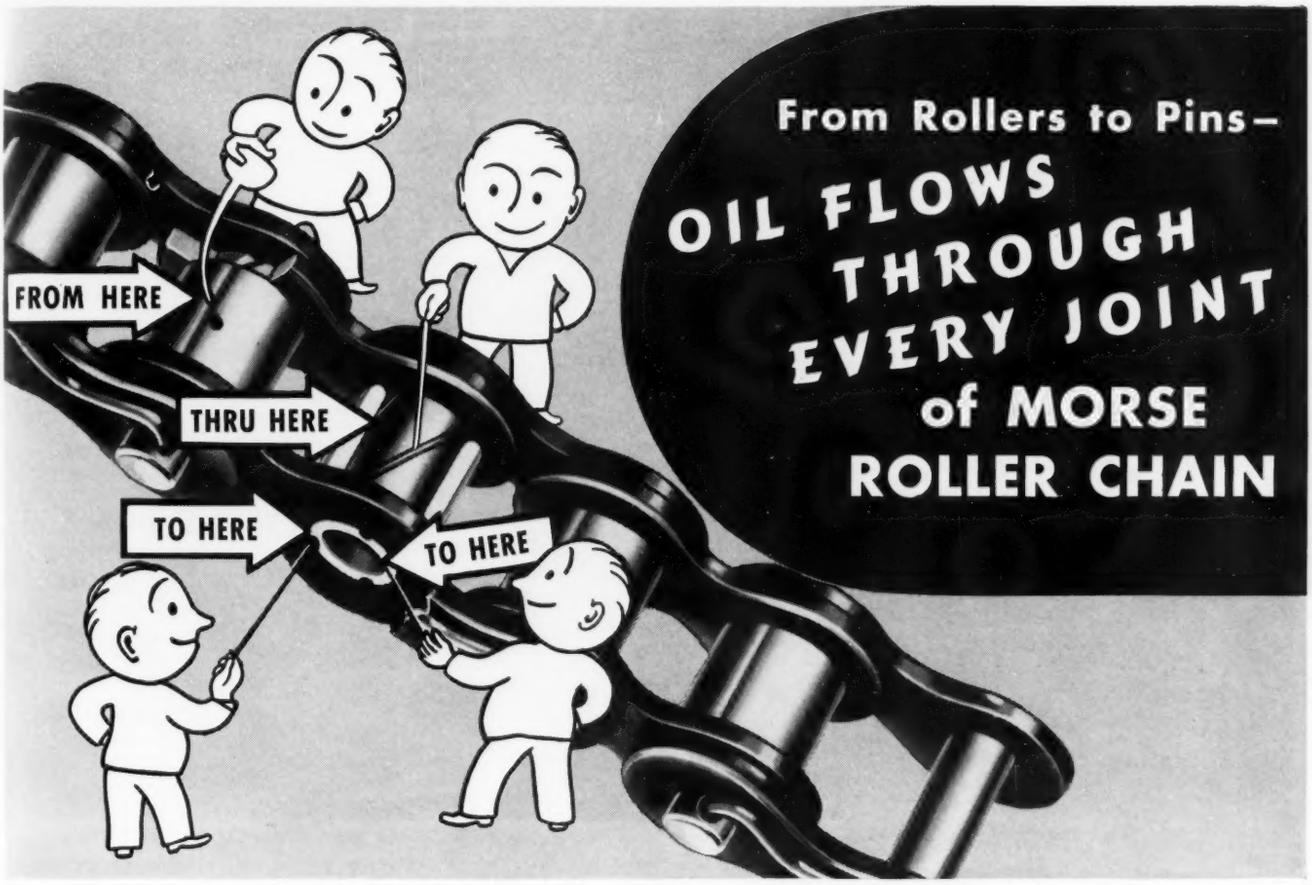
Recording Thermometers. Foxboro Co. 40-page booklet describes company's line of recording thermometers for industrial use; included are seventy photographs of thermometers, their parts and accessories, and installation details.

Lighting Unit. Wheeler Reflector Co. Bulletin 62 describes company's Day-Flo fluorescent lighting unit developed for general industrial lighting.

Electrical Equipment. General Electrical Co. Loom motors and controls manufactured by this company are described in Bulletin GEA-1556B. In Bulletin GES-2136, titled "Little Known G-E Products for Industry" the company's weft-straightening control for use on tenters is described, in addition to other products of a special or unusual nature.

Plant Design. Albert Kahn, Inc. 4-page illustrated leaflet describes company's facilities for designing large or small industrial plants, including details such as power plants, electrical systems, sanitation, air conditioning, acoustics, insulation, heating plants, process layout, etc.

(*Continued on page* 126)



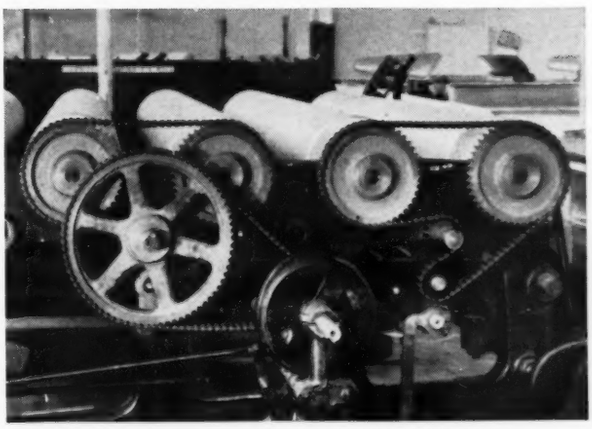
AND IT'S INTERCHANGEABLE!

Now! Morse Roller Chain is interchangeable with every other standard roller chain. And it is so ingeniously designed that it is interchangeable while retaining its exclusive channel lubrication. Now you get the adaptability and convenience of an interchangeable chain with Morse lubricating advantages.

Other impressive advantages of this great chain are the heavier sideplates which give Morse Roller Chain at least the strength of conventional "heavy duty" construction, the rollers ground from solid bar hardened alloy steel stock, the Morse patented spring cotter which will not "chew" or become loosened by vibration.

Morse Roller Chains, channel lubricated and completely interchangeable, will bring to your drives new economies of operation, service, and production. Yet they cost no more than ordinary roller chain drives!

For complete information and a demonstration of the principle of channel lubrication, call in the Morse man in your territory. Or write direct to Morse, Ithaca.



EXTREME FLEXIBILITY OF APPLICATION CHARACTERISTIC OF MORSE ROLLER CHAIN

Complicated drive arrangements are easily handled with Morse Roller Chain. Its unusual flexibility allows its use on drives of long or short centers, slow or relatively high speeds, and in the full range of speed ratios. In multiple widths, this roller chain is particularly suitable for economical operation at high speeds and in close quarters.

Roller chain can operate a number of synchronized drives, and can run on sprockets on either side of the chain.

Morse Roller Chain transmits power with high efficiency, is very easy to install and use, requires little maintenance care, enjoys long, useful, trouble free life.

Morse Roller Chains are made in a complete range of sizes, carried up to 100 h. p. in stocks in key cities throughout the country.

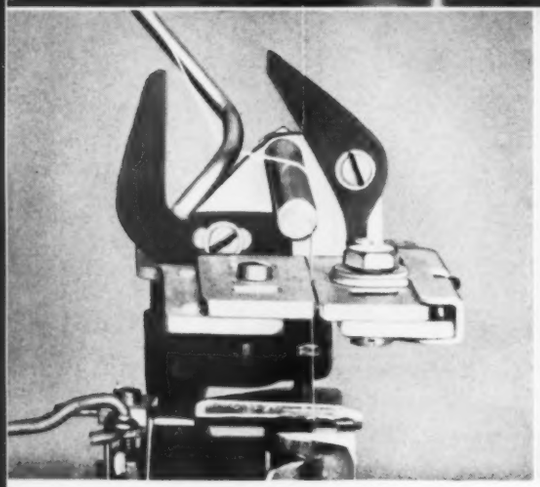
SILENT CHAINS ROLLER CHAINS FLEXIBLE COUPLINGS KELPO CLUTCHES

MORSE *positive* DRIVES

MORSE CHAIN COMPANY ITHACA N. Y. DIVISION BORG-WARNER CORP.

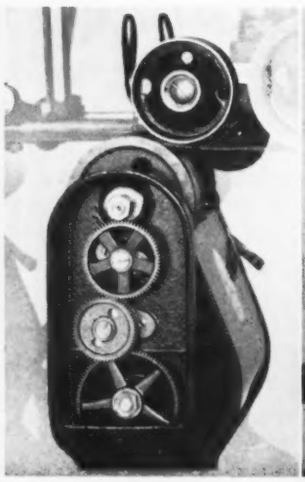
CONES OF INSPECTED YARN
For high speed and continuous operation

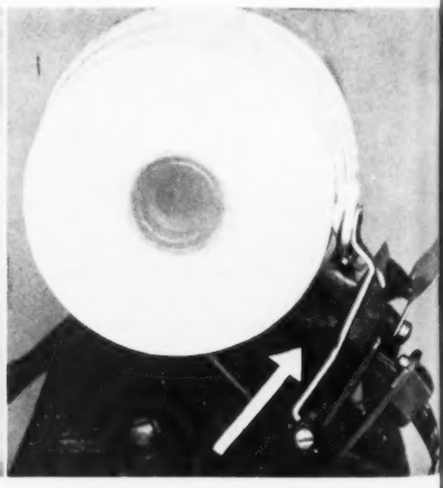
Precise winding on No. 50 machines gives silk throwsters and rayo manufacturers the opportunity to remove imperfections. Inspecte yarn insures continuous running on the high speed machines tha follow the winding.



The Precision Cleaner can be quickly and accurately set to remove imperfections from silk and rayon yarns.

The Gear Gain Mechanism positively controls the lay of yarn, especially for heavy, large diameter cones.

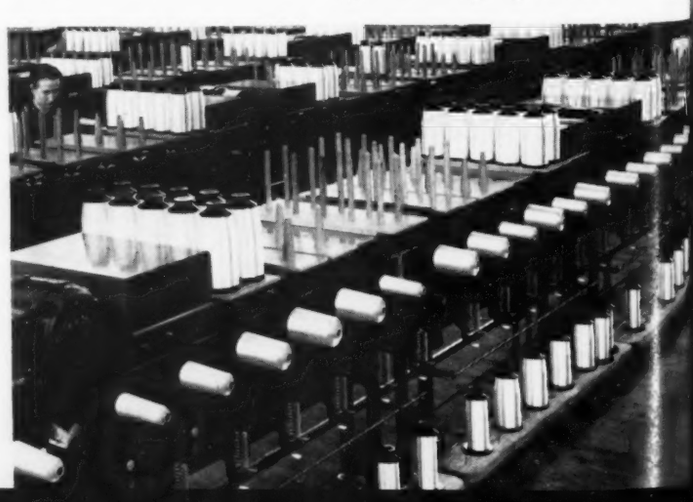




The Offset Thread Guide increase clearance between Traverse Back and age for winding larger-diameter cones.

Leesona-built Winders are used by all rayon manufacturers and by silk throwsters to preserve and protect the quality of the yarn. Increased sales of No. 50 Winders during 1939 demonstrate the mills' satisfaction with the high quality and low maintenance cost of these new and improved machines.

Again in 1939 — more than 90% of all silk and rayon cones were Universal Cones



LEESONA

UNIVERSAL WINDING COMPANY
Providence, Rhode Island

THE OVERSEERS' CORNER

A PETE AND BILL DISCUSSION

WHAT CHANCE FOR BEGINNERS?

Pete waited patiently for the explosion after Bill slammed the top drawer shut, upset his chair as he got up from his desk, and they both left the mill together.

"That Williams boy is fired!" he ejaculated when they were outside, "I've had enough of his slipping off and fooling around those machines, when he ought to be minding his own business."

"Why, Bill," said Pete, surprised at his change of attitude, "you were bragging about him last week. Said he was a smart boy."

"Just a smart-alec, that's all, and out he goes on his ear! Every time I look for him he's hanging around one of the fixers, asking questions and taking up time. I've warned him each time, and now I'm *firing* him, and that's all there is to it."

"Well now, Bill," said Pete soothingly, "if he keeps up with his own work, and even gets a little bit ahead—then if he's ambitious and wants to learn how to do something else and maybe get a better job some day, you ought to encourage him. He might make you a good man if you go easy on him. Give him a chance!"

". . . upset his chair."

Bill chewed gloomily, eyed a fire plug and scored a bull's eye as they passed. "No," he said emphatically, "it won't work. I hired him to do his job and not to stick his nose into other people's jobs. He's through."

"But how is a fellow to improve himself or advance to a better job if you keep him tied down all the time?" asked Pete.

"That's not my business," replied Bill, "I'm just an overseer, not an educational adviser. I've got to get production, and I gotta have discipline!"

"How did *you* learn, Bill?" asked Pete as he turned away at the corner, not waiting for a reply.

How far can foremen go in giving beginners a broader chance?

Letters From Readers

Educate, But During Mill Hours

"Informal Classes for Workers"
Pete & Bill, July, 1939

Editor, Overseers' Corner:

Pete's concern for the welfare and improvement of his men is proper.

Too many supervisors entertain a selfish desire to monopolize their knowledge and experience. They fail to realize that the experience they have received and their ability have actually been paid for by the company in their salaries, and rightfully belong to the company rather than to them individually.

Therefore, if the experience a man gathers while in the employ of a company is gathered at the expense of the company, surely the company has a proper right to its use. The best way for the company to realize any return on this investment is to have the supervisor freely instill this experience and knowledge into the men under him. To withhold it borders on dishonesty.

However, Pete's place to teach and improve his men is *right on the job.* Day by day, as problems arise right on the scene of action, he has numerous opportunities for personal tutoring and dissemination of knowledge. Pete's hours at home should be used for his own betterment. All of us need to continue our studies, research, thinking, and self-improvement as long as we are employed. There is a time to give and a time to receive.

KENNETH GROSSE (*Pennsylvania*)

Favors Observing Holidays

"Legal Holidays,"
Pete & Bill, Nov. 1939

Editor, Overseer's Corner:

"The show must go on" may be a cardinal rule in the theatrical world but adoption of such by industry has only a self-paralyzing effect. Workers must be allowed the observance of legal holidays in order to keep their morale at high ebb. Lowering their morale creates a temporary state of mental and physical impairment enough to dent a worker's output even beyond the holiday period.

Who makes industry? Man. What makes the man? The pursuant policies of industrial management. Therefore, the foundation of successful operation hinges upon the perspective of industry. It is a sad proposition when the management shows lack of foresight in denying the employee the right to observe a legal holiday.

Production control in its entirety

CONTRIBUTIONS to the letters and practical helps in "The Overseers' Corner" are paid for when published without regard to length. We use letters (not over 200 words) discussing the material on this page or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute practical helps or kinks which are published (not over 500 words) will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. Contributions of greater then specified length may be given consideration as articles. If these pages interest you —contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42d St., New York.

Officers of Textile Safety Committee Named

The executive committee of the Textile Section of the National Safety Council for 1939-40 includes the following:

E. A. Roberts, American Mutual Liability Insurance Co., Atlanta, Ga., general chairman; E. M. Salley, American Enka Corp., Enka, N. C., vice chairman; Frances Bethune (R. N.), Firestone Cotton Mills, Gastonia, N. C., secretary and News Letter editor; R. B. Wickham, West Point Mfg. Co., West Point, Ga., engineering committee chairman; M. F. Trice, North Carolina Board of Health, Raleigh, N. C., health committee chairman; W. R. McCallum, South Carolina Industrial Commission, Columbia, S. C., membership and publicity committee chairman; W. L. Powell, North Carolina Industrial Commission, program committee chairman; Norman F. Hines, Ludlow Mfg. & Sales Co., Ludlow, Mass., safe practices pamphlet committee chairman; F. H. Shuford, North Carolina Department of Labor, Raleigh, N. C., committee on cooperation with trade associations, chairman; W. D. Weaver, Marshall Field & Co., Spray, N. C., visual education committee chairman.

Members at large include J. E. Bergert, Johns-Manville Corp., Manville, N. J.; B. R. Brown, Columbia Mills, Inc., Roseland, Chicago, Ill.; John J. Burger, W. J. Dickey & Sons, Inc., Oella, Baltimore Co., Md.; H. R. Cory, Beacon Mfg. Co., Swannanoa, N. C.; Charles H. Eames, Lowell Textile Institute, Lowell, Mass.; Arthur S. Johnson, American Mutual Liability Insurance Co., Boston, Mass.; H. McKelvie, Merrimack Mfg. Co., Huntsville, Ala.; Frank E. Morris, Liberty Mutual Insurance Co., Boston, Mass.; T. A. Wilson, North Carolina Industrial Commission, Raleigh, N. C.

stands head and shoulders above all other factors of industrial operation. Yet, it must take a back seat insofar as a holiday is concerned. It is my opinion that a production schedule will function more smoothly once industry takes a positive stand towards holiday observance.

SIDNEY STEIN
(New York)

Overseer's Blind Spots

Editor, Overseer's Corner:

I want to answer A.B.B. (N.C.) questions in the October, 1939, issue. Hope you'll publish it. Very few overseers and fewer second hands know the cost of brooms, brushes, envelopes, flyer pressers, travellers, spinning rings, bolsters, bolts, screws, belting, light bulbs, crayon, paper, pulleys, gears, whorls, belt dressings, parts and goodness-knows what else.

I think that they should rub loose some of those befogged cobwebs in that inactive, unused attic of their craniums, or domes as some call that top-knot we have, and learn and remember some of these pertinent facts. It may not seem important, but when someone damages a part or destroys some intricate supply, we should be able to tell him what these small items cost, even though some smart aleck or wise cracker may pop up and say "He's padding the price!"

There is more to the price of a part than the initial cost that comes on the invoice. There is freight, supply-room clerical expense, supply-room investment cost, interest charges on supplies that don't move fast; office cost of ordering and getting quotations, receiving, billing and paying; the cost accountant's salary and other "pluses" that may seem too minute to 'figger'. Darn tootin' it'll pay to know 'em!

LAMAR FOGEL
(South Carolina)

Overseers' Practical Helps

Neon Lamps Simplify Slip-Speed Checks

For obtaining speed values of a-c. machinery, the engineers of Reliance Electric & Engineering Co. have devised a simple, portable unit using neon lamps, which is as easy to use in the field as in the shop, and which any plant engineer can make for his own use.

Four, clear bulb, three-watt, Neon glow lamps in a group, arranged as shown in the accompanying illustration, are used. This is necessary because the lamps are made for 115-volt circuits and to use them directly in the motor circuit, as must be done in testing, requires that provision be made for operation on 220 and 440 volts.

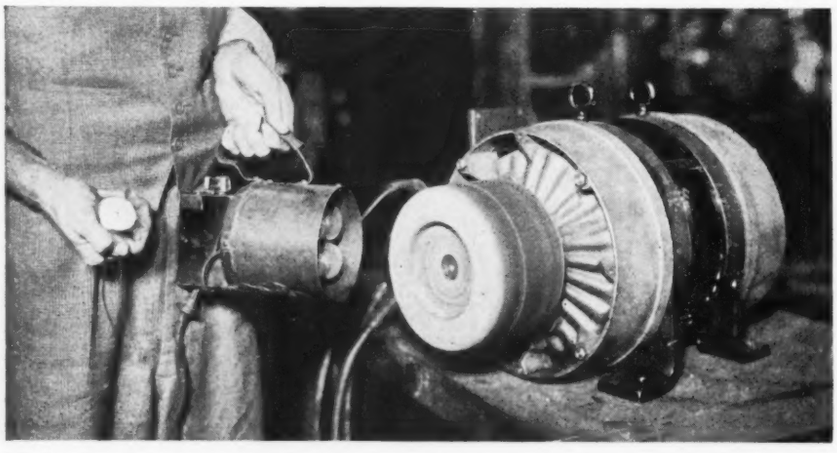
Four standard lamp bases are mounted on a small board. A conical hood of steel, painted black inside, serves to keep out other light rays. On the back of this board is mounted a 3-pole, 2-way switch. Thrown in one direction, this switch connects two of the lamps in series and two in parallel, for use on 220-volt circuits. Thrown in the opposite direction, the switch connects all the lamps in series, for use on 440-volt circuits.

The lamp can be used for obtaining the slip-speed of any a-c. motor, with the exception of high-slip motors operating at more than 100-r.p.m. slip. It is accurate, with calibration never required, and convenient to use, especially when the end of the motor shaft is inaccessible. In use, light from the device is directed on the end of the shaft and the number of revolutions per minute of the keyway or other fixed part on the rotating element counted. Marking the end of the shaft with a single chalk mark simplifies the counting and using a stop watch increases the accuracy of observance of the time interval used. Subtracting the slip r.p.m. from the synchronous speed gives the motor r.p.m.

Of course, in a plant where all alternating current comes from the same source of controlled frequency, only a single neon lamp, in a standard reflector which can be plugged into the nearest 115-volt lamp or wall receptacle, is needed.

Static Electricity in Belts

Static electricity in belts is often troublesome. It can be largely prevented by using a suitable belt dressing. Grounding metal parts in contact with the belt is only partially effective, owing to belts being poor electrical conductors, especially when dry.



Simple portable device for obtaining accurately the speed of any a-c. motor whose slip value is not in excess of 100 r.p.m.

For leather belts a suitable dressing can be made from equal parts of water and glycerine, or alcohol and glycerine. This should be applied weekly. Another suitable dressing can be made from 100 parts fish glue, 80 parts glycerine, 100 parts sulphonated castor oil, 170 parts water, 80 parts lampblack, and 2 parts ammonium hydroxide.

A dressing for rubber belts consists of 18 parts lampblack and 82 parts varnish, these being diluted to a pasty consistency with carbon tetrachloride or solvent naphtha.

Keeping belts well dressed with one of these dressings will prevent the accumulation of static.—W. G. W. (*England*)

Foremen's Troubles

[Editor's Note—Undoubtedly conditions of this sort occasionally develop but we wonder if modern competition has not reduced nepotism in textile mills to a minimum. The cases cited apparently occurred a great many years ago.]

ALL FOREMEN have their troubles, probably the worst of which come from the top. For instance, take some young fellow who has just graduated from college for whom a place has to be made and whose relatives may have a lot of money invested in a mill. So, perhaps after an interval in which he is sent through the mill, spending a few months in each department "learning the business," he is placed in charge because his folks own a majority of the stock.

With the assurance of inexperience, he may begin to make changes, forgetting that change is not always progress. The mill may have been running successfully for years, but to him that is just a better chance to make a hit. He will show the old fossils just what a bright, enterprising young man can accomplish. So he advocates learners, not knowing about the messes they make. He thinks that any boy with a high-school education, which is more of a detriment than otherwise to anyone who works with his hands, can learn how to run any machine in the mill in about a week. It takes years, as any old hand knows.

A long time ago during a weavers' strike in New Bedford one of these astute managers made this statement in a Boston newspaper: "Weaving is a matter of dexterity rather than skill. I can take you, who have never touched a loom, into the mill and in a half a day you can weave as well as you ever will be able to, no matter how long you stay at it." This is just plain unadulterated nonsense. It takes longer than that to learn to change shuttles.

And speed. No machine ever runs fast enough. The foreman has a hard time fighting this idea. Then he saves a cent or two a pound on material and wastes twice as much in the processing, or more. In one mill one of these inexperienced gentry bought 500 lb. of worsted skein yarn at half price and crowed about his bargain until he found it was moth eaten and the winder couldn't run four spindles. He also bought a lot of beam flanges which weighed about three times too much and had to be returned to the foundry.

Of course no one is perfect, but it stands to reason that an old experienced foreman can do things more efficiently and economically than some theoretical gentleman whose knowledge is extremely superficial. Of course these cases stated are only small things but many a mill has been put out of business by just such management, or lack of management, just as you may happen to see it.

A. W. ORKER (Philadelphia, Pa.)

Preparation of Spun Rayon

Discussed at Spartanburg carders and spinners session

PREPARATION OF COTTON and spun rayon was the theme of the recent meeting of the South Carolina Carders and Spinners Division of the Southern Textile Association held in Spartanburg, S. C. G. G. Simmons, superintendent, Drayton Mills, Spartanburg, chairman of the group, presided. Wallace W. Splawn, overseer of spinning, Mill No. 4, Pelzer (S. C.) Mfg. Co., led the technical carding and spinning discussion. A paper on leadership was presented by W. M. McLaurine, secretary of the American Cotton Manufacturers Association, Charlotte, N. C.

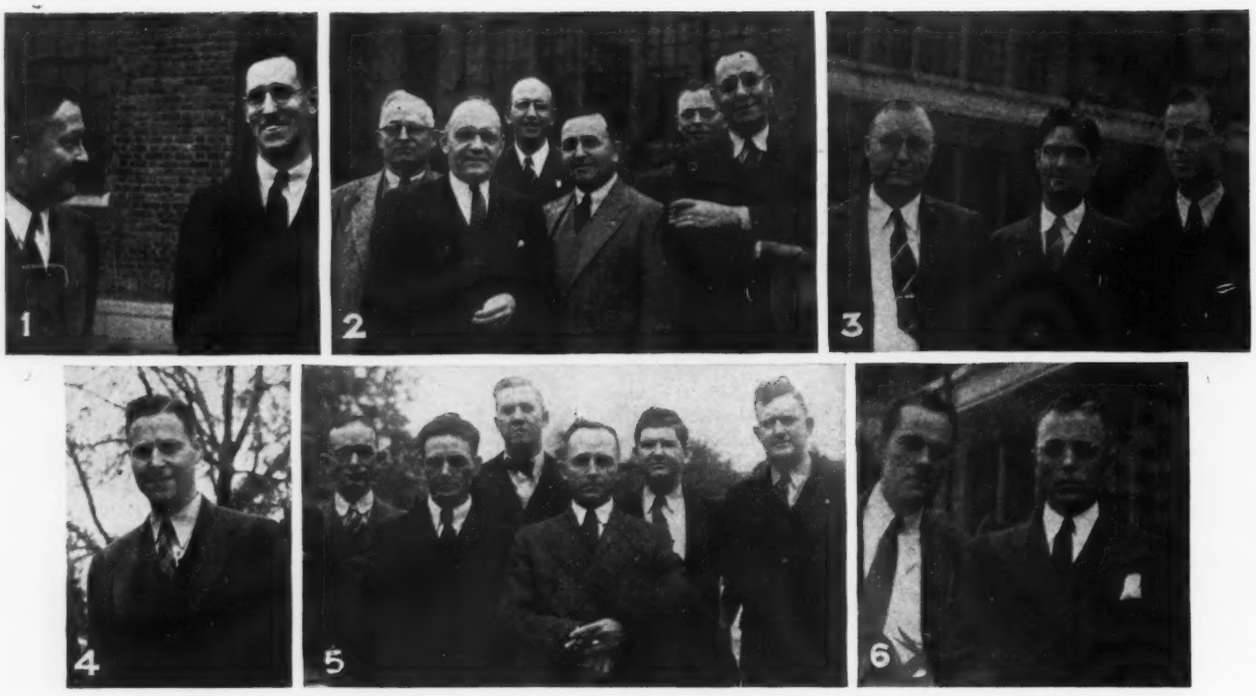
A successful leader, according to Mr. McLaurine, must "visualize, organize, deputize, supervise, and humanize." Traits in leadership which are most important are as follows:

1. Sincere respect for the ideas and rights of those under him.
2. Patience and tact to sell his own goals to his subordinates.
3. A personality that reflects calm self-control.
4. The ability to instruct and the character to inspire.
5. Complete recognition of the fact that men can be led further than they can be driven.

Following Mr. McLaurine's address, J. L. Brannan, overseer of carding and spinning, Hermitage Cotton Mills, Camden, S. C., analyzed the action of the beaters in a one-process picker. In running a 16-oz. lap, he said that the front beater strikes 38 blows an inch and the second beater 34 blows. The third beater, in the back, assuming that it has 50 spikes and is operating at 400 r.p.m., brings the total beats per pound to 3,500. This is quite different from 38 beats per inch, which is the usual method of calculating beats. If the lap is changed to 14-oz., production must be maintained in order to take care of the cards. But this does not mean the beater speed has to be changed. The speed of the calender roll, when reduced, lowers the number of beats per pound, because a thin sheet of cotton is more easily cleaned than a thick one. It is possible to figure the number of beats on the Buckley beater, he said, by using as a basis of calculation the diameter of the beater, the revolutions per minute and the number of spikes. One spike does not go all the way across, and it is necessary to take a happy medium in this measurement. Smith Crow, general superintendent, Drayton Mills, agreed with Mr. Brannan that it is possible to change the beats per inch or beats per pound by changing the delivery part of the machine without changing the speed of the beater, but he pointed out that it is not possible to change the beats per pound without changing the beats per inch.

Discussing the preparation of spun rayon, Mr. Crow described a new rayon picker which is being developed by one of the machinery companies. It is equipped with a single beater which runs anti-clockwise, or up, instead of down in the conventional manner. The manufacturer states that an average of only 7% fibers is broken by the beater in comparison with the usual 20 to 30%.

There was a difference of opinion as to the best method of repairing worn feed-roll journals on cards. One member reported that he goes over his feed-



SNAPPED AT CLEMSON STA MEETING

1. Discussion leader and chairman: Wallace W. Splawn, left, overseer of spinning, No. 4 Mill, Pelzer (S. C.) Manufacturing Co., who was in charge of the carding and spinning symposium at Spartanburg. G. G. Simmons, superintendent, Drayton Mills, Spartanburg, chairman of the S. C. Division of STA., presided over both the Spartanburg and Clemson meetings. **2.** Present at Clemson meeting were, left to right: W. W. Cobb, superintendent, Norris Cotton Mills Co., Cateechee, S. C.; A. D. Bolt, overseer of weaving, Mills Mill; Robert Buck, John Batson, J. C. Boyce, superintendent, Jackson Mills; and Davis Batson. **3.** From Drayton Mills, Spartanburg, left to right: L. H. Darnell, W. E. Moser and E. D. Coker. **4.** Ted Crane, of the cost department, Hamrick Mills, Gaffney, S. C. He was a star athlete at Clemson College a few years ago. **5.** Group from Jackson Mills, Iva and Welford, S. C., left to right: A. B. Davis, J. Henry Ellis, James Davis, S. W. McMahon, Monroe F. Davis, J. B. Reeves and E. C. Burdette. **6.** Sam Zimmerman and Davis Batson, of Steel Heddle Co., Greenville, S. C.

rolls about once a year and takes out the worn ones. He has the shop build up these worn rolls with bronze and then turn them down to standard size in a lathe. At the same time, the bearings are taken out and replaced with new ones. Feed-roll bearings are thrown away if they are worn at all. Frank D. Lockman, superintendent, Monarch Mills, Lockhart, S. C., recommended taking the boxes off and splitting them down half way. He remarked that he has never seen a feed roll worn on the bottom, although laterally they may have $\frac{1}{16}$-in. play. When the bearing is split, the weight is on the feed roll, which is pressed up at all times by the cotton. In other words, just let the box down as the top of the bearing wears.

The maximum and minimum drafts on long-draft spinning making 31/1 yarn (front-roll speed 125 r.p.m., 8-in. bobbin, $6\frac{3}{4}$-in. traverse, $1\frac{13}{16}$-in. ring, No. 1 flange, $3\frac{1}{2}$-in. gage, $1\frac{1}{16}$-in. cotton, 2.00 hank roving) was agreed to be between 17 and 20. Joseph C. Cobb, superintendent, Startex Mills, Tucapau, S. C., advocated a draft of 19. George Ray, Victor Plant, Victor-Monaghan Co., Greer, S. C., said that he is running a draft of 21 on 30s warp with a very satisfactory breaking strength—front-roll speed being 135 r.p.m. he uses double roving 3.00 hank. End breakage is 30. Mr. Cobb further remarked that following an ends-down test on filling, 3.15 hank roving, single, his mill went to 2.50 hank roving, single, since no appreciable difference was noted in the breaking strength.

On warper winders, Mr. Brannan said that his average stops per beam of 31,000 yd. is 8.5 stops, and his throwouts run 8% to 10%. Twist is 4.40 to 4.60.

Weaving Problems

Considered at Recent S. T. A. Meeting

FOLLOWING A PAPER on Sanforizing by William H. Harriss, of Cluett, Peabody & Co., reported in detail in our December issue, general weaving problems were taken up at the Clemson (S. C.) College meeting of the South Carolina Weavers Division of the Southern Textile Association. G. G. Simmons, superintendent, Drayton Mills, Spartanburg, chairman of the group, presided.

Two interesting methods of salvaging oily or dirty filling were offered by members. C. F. Stansell, superintendent of Victor-Monaghan Co., Greenville, S. C., said that his bad filling is returned to the copping machine where it is worked up, salvaging all possible and making waste of the rest. A quill that has an oily spot near the bottom is reconditioned down to the oily spot. A girl winds off the good filling. A record is kept of the waste. Robert T. Stutts, superintendent of Simpsonville (S. C.) Plant, Woodside Cotton Mills Co., reported that any accumulation of oily filling in his plant is woven into cloth on one particular loom, and sold locally to farmers in the vicinity.

In answer to a question, Louis P. Batson, president of Southern Shuttles, Inc., Greenville, said that the present trend in heddles is toward the 14-in. type for light numbers of silk and rayon on heavy harness work. Where less than twelve harnesses are used, 12-in. heddles on cotton are adequate. The 14-in. heddle offers more flexibility, causes less

strain on the warp, and less jerking.

Frank D. Lockman, superintendent of Monarch Mill, Lockhart, S. C., said that kinky filling might be caused by a poorly conditioned room, improperly timed harness, improper distance of the harness from the reed, loom picking too late, too much power on loom, check straps and shuttle boxes not properly adjusted, etc. E. D. Coker, assistant overseer of weaving, Drayton Mills, added that too much power in the loom and the shuttle rebounding in the box will cause kinky filling.

Electrical Maintenance and Demand

Are major topics at Northern Master Mechanics Session

TWO PAPERS on electrical equipment were presented at the fall meeting of the Northern Master Mechanics Division of the Southern Textile Association held recently at Charlotte, N. C. B. L. Cathey, of Westinghouse Electric & Mfg. Co., Charlotte, spoke on the maintenance of motors. A. G. Morrison, superintendent of the meter department, of Duke Power Co., Charlotte, spoke on the electric demand meter. W. H. Leathers, master mechanic of Consolidated Textile Corp., Lynchburg, Va., chairman of the division, presided over the meeting.

Most of the program was devoted to formal presentation of the papers. However, following completion of the scheduled address, there was considerable discussion of maximum demand problems.

In answer to a question regarding proper time of starting up a fire pump or other auxiliary equipment, Marshall Lake, of Duke Power Co., elaborated in some detail. He said that the time to start a fire pump depends on the size of the mill. A mill that would normally pull 1,000 kw. peak demand for the first 1½ to 2 hr. after starting on Monday morning, will drop 250 or 300 kw. within 4 or 5 hr. after the machinery has begun to warm up. At that time, it would be advisable to put on the fire pump, taking 75 kw. But in a small mill, where you have a demand of only a few hundred kilowatts, when you put on the fire pump the average demand will run up. If it is run for 10 min., or a third of your 30-min. interval, that would add only one-third of 75 kw. to the demand for that interval. If it operates for 30 min. you add 75 kw. to the demand for the interval. As to the cost, take the straight demand plus the energy charge, which a good many power companies have. Say the demand is $1 per kw. If you run your demand up 25 kw. that will cost you $25, and it may run it up that amount not only for that month but maybe for the next two or three months. The situation varies with conditions. It is customary to read the meters once a month and reset them. In our case, the demand for billing purposes is the highest in three months. With some companies, however, it is the highest point in twelve months, depending on the contract.

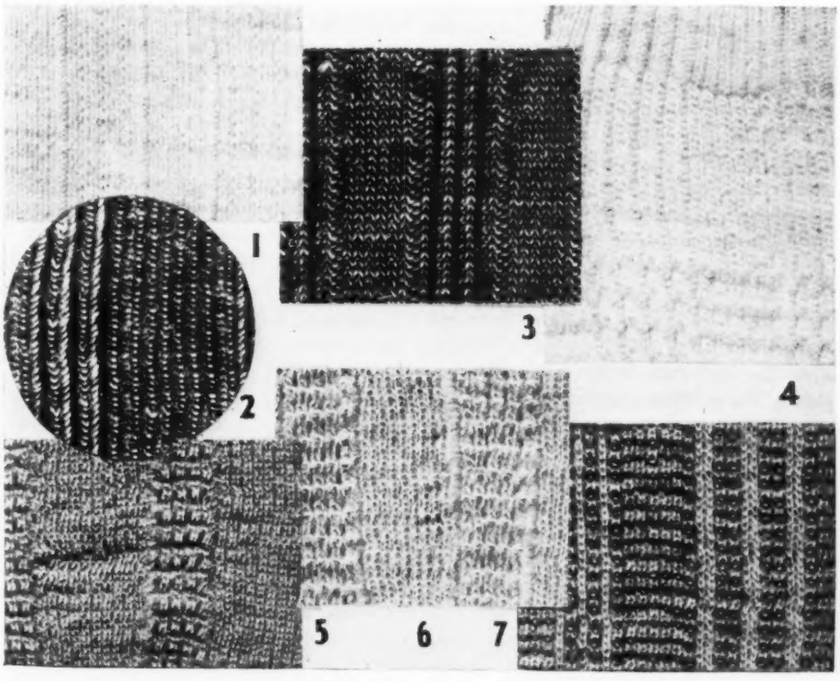
An extensive abstract of Mr. Cathey's paper appears on page 64 of this issue.

New Outerwear Fabrics

Use of long-latch cylinder needles offers interesting possibilities to knitter

By PAUL W. NILES

THE EXPRESSION "new ideas from old" may well apply to the knitted fabrics shown in the accompanying illustrations. Some 40 years ago fancy-stitch fabrics such as these, made with long-latch cylinder needles, were used for men's underwear. Today, they might well find use in sweaters, dresses, and other outerwear, especially for the trim on children's suits and jackets. The swatches are directly from the knitting machines and do not fully present the pleasing appearance of the finished fabric.



Group of fabrics produced with long-latch needles.

When long-latch needles are being used, the cylinder rise cams must be ground down to hold a stitch on these needles and still be high enough to clear the latch on the regular short-latch needles. It is customary to grind down every other rise cam. These cams can be shifted around to hold a single stitch with one cam or to hold two stitches if two ground cams are placed together. Extreme care should be used in grinding the cams, to make sure that the short-latch needles will not touch the cleared stitches, even if the dial is high.

In fabric No. 1 the panels have been formed by having 7 needles in, 1 needle out, all around the cylinder; every other needle in every second panel is long-latched. For knitting fabric No. 2 the needles are arranged this same way but a colored yarn and full-tuck dial stitch

are used. This fabric can be used reversed. Fabric No. 3 is made with the same needle arrangement as Nos. 1 and 2, but with a plain stitch, and is not reversible.

A combination of three patterns is used in fabric No. 4; i.e., plain, tuck, and double-tuck. The effect of four long-latch needles together is shown in fabric No. 5. Fabric No. 6 is a double tuck on long latches. Fabric No. 7 shows the effect of having a dial needle out, as compared with all needles in.

The number of patterns which it is possible to produce by the use of long-latch needles is almost unlimited. By the removal of needles at intervals, this number is still further increased.

Profit or Loss in Weaving?

Uneven warp take-up in silk and rayon mills may change black ink to red

By ARTHUR C. WAYMAN

UNEVEN OR VARYING warp take-up in weaving is a problem of importance to all silk and rayon weavers. Whether 100 or 1,000 looms are being operated, losses due to excessive warp take-up remain the same, proportionally. Not only is uneven take-up responsible for production of certain defects in the woven fabrics, but, since profit margins are necessarily small, varying take-ups may mean the difference between a profit and a loss.

There are several factors which affect take-up, to a greater or less degree, depending on the construction of the cloth being woven and on conditions in the particular mill. Preparatory departments can be the cause of serious variations. Uneven spool tensions in winding and warping, or differing tensions in beaming, can cause unequal take-up in weaving. Loosely beamed warps, for instance, will not stand much warp tension without causing stickers; these result from the fact that the unwinding ends, being tight, bury themselves in the soft body of the warp. Such a condition may also give the fabric a watery or "overshot" appearance.

The most important items to be kept under observation in the weave room are warp tension, cloth construction, humidity, timing of loom, and general set-up of warp. A few suggestions regarding each of these follow.

Definite standards should be developed in each mill as to the correct amount of weight to be carried on warps, according to their yardage and the construction of the fabric being woven from them. It is possible to work out accurate instructions, based upon past experience. Some mills use tensometers to obtain reliable information on tensions. Care must be taken that the instrument is inserted at the same place in the warp each time a reading is taken.

Mills not using tensometers can go by the number of weights; if levers are used, the position of the weights is also important. On looms equipped with rope let-offs, the number of laps must be considered, in relation to the sizes of beam heads and ropes used. If it is the practice in the mill to apply mica, French chalk, graphite, stove polish, or other similar material to the looms, it is absolutely essential that such applications be made regularly.

PROPER TIMING of harnesses in relation to the beat-up of the reed is of importance. A loom on which the reed beats up after the harnesses have closed will show a greater warp take-up than another loom on which the beat-up occurs at dead center or the instant all harnesses are even.

Correct, even relative humidity and room temperature are necessities. The degree of moisture necessary depends mainly upon the type of yarns being used. In mills running pure silk, the degree of humidity required is controlled by the soaking formulas. Some mills run the silk dry, just as it comes out of the bales. Naturally, a greater percentage of moisture is needed in such cases than would be necessary if the yarn had been soaked or oiled preparatory to winding.

When viscose or acetate filament yarns are used, care should be taken that the humidity is not excessive, because these yarns stretch very easily when they become too moist. If excess warp tension and excess humidity are present at the same time, the two conditions combined may overstretch the yarn. This will reduce its denierage and may react detrimentally upon the woven fabric. Great care must therefore be taken to maintain even and correct temperature and humidity. When several different types of yarns are in use at the same time, the proper average for all should be determined and maintained.

The greater the number of picks per inch of a construction the greater will be the warp take-up provided other factors, such as cloth construction and loom timing, are equal. The tightest weave—hence, the one usually showing the greatest warp take-up—is the plain weave. However, a low-pick plain weave may show a lower take-up than a high-pick satin. Also, a soft filling-yarn will result in less take-up than a hard-twist crepe yarn. This is due to the fact that the soft yarn offers less resistance to the interlacing warp ends, thereby permitting these ends to dig into the filling somewhat. The hard crepe yarn, on the other hand, forces the warp ends to give way. Figuratively speaking, therefore, a 200-den. natural-twist yarn (1½–2½ turns) will show a considerably lower take-up figure than a 200-den. hard-twist crepe yarn (45/50 turns). Of course, the 200-den. crepe is slightly heavier, due to the added twist. While this partially accounts for the greater take-up, the hard nature of the crepe yarn increases it still further.

As far as weaves are concerned, take-up figures for the same construction will become lower with each succeeding weave in the following list: plain 2/1 serge, 2/2 faille, 4-bind satin, 6-harness sand, 5-bind satin, 6-bind satin, etc.

Another item deserving consideration is the position of the whiproll. Some mills, of course, do not use these rolls but adjust the warp, after weaving a certain number of cuts, so that the ends feed straight into the harnesses. Where whirolls are used, it has been observed that the work of the warp ends in turning this roll imposes an additional strain upon the warp. Therefore, checks on tension should be related to warp-positions. A nearly run-out beam, from which the warp passes at a sharp angle over the whiproll, will show two different tension figures when comparisons are made between portions before reaching the whiproll and after leaving it.

IT IS THE RULE, of course, in well-organized mills to keep actual clearance records of all warps. It is necessary to keep close account of all waste in order to arrive at a true take-up figure. Samples may be cut off at intervals, smashes may cause the warp to be pulled up, reed changes will do likewise, and there is always a certain lost portion when starting a new warp and when removing a run-out warp. Each of these factors influences the number of yards of cloth actually produced from a warp, and, unless taken into consideration when calculating take-up, will give the impression that the take-up is greater than is actually the case.

QUESTIONS & ANSWERS

Slub Filling Patterning

Technical Editor:

We are having trouble in weaving one of our staple rayon fabrics which uses slub filling. In weaving we find by taking a complete doff from a ring frame and keeping it separate from other doffs that we have one or two bobbins of filling which cause a patterning or chevron effect in the fabric; the rest of the bobbins weave satisfactorily. How can this trouble be eliminated and why should one or two spindles produce a slub yarn different to that spun on the remaining spindles of the frame? (8693)

Evidently there is a relation between the width of the cloth and the distance between the slubs. When a box loom is being used, it is a good plan to use two shuttles for the novelty yarn, inserting alternately two picks from one shuttle and then two picks from the other. This breaks up the regularity of the slubs or bunches. Care in planning the cloth width so that it does not correspond to the repeat of the bunches will help in overcoming the trouble.

If trouble is not eliminated, a slightly finer reed should be used. Suppose a 30-dent reed is being used on 40½-in. goods. Then by changing to a 30.3-dent reed, the trouble might be eliminated. The trouble might also be eliminated by making a smaller or larger bobbin on the spinning frame.

The above suggestions relate to general patterning of slub filling. However, you state that your trouble occurs with only about two bobbins from every doff. This seems to indicate that the tapes on two of your spindles are slipping, or else two of your top rolls are not working as they should.

Bobbin Diameter and Yarn Tension

Technical Editor:

Kindly explain why the tension on the yarn decreases as the bobbin diameter on a ring spinning frame increases. Is there any difference in traveler speeds at empty and at full diameter? (8689)

This decrease in tension is due to a principle of mechanics. This principle is that as the angle that the yarn makes with the plane of the traveler increases, the force which tends to pull the traveler against the ring decreases; at the same time, the force tending to pull the traveler around the ring increases. The accompanying diagram explains this.

A mechanical analysis of a yarn balloon will show that there is no variation in traveler speed as the bobbin diameter

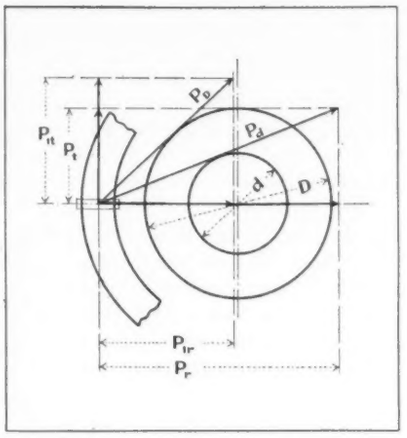


Diagram showing effect of bobbin diameter on yarn tension. *D*, diameter of full bobbin; *d*, diameter of empty bobbin; P_d, yarn tension at empty bobbin diam.; P_D, yarn tension at full bobbin diam.; P_r, radial force tending to pull traveler against ring at empty diam.; P_t, tangential force tending to pull traveler around ring at empty diam.; P_{tr}, radial force tending to pull traveler against ring at full diam.; P_{tt}, tangential force tending to pull traveler around ring at full diam.

changes. While the frictional force tending to retard the traveler is decreased and the pulling force on the traveler acting around the ring is increased as the bobbin diameter increases, the balloon diameter increases. This increase in balloon diameter sets up a wind resistance which tends to retard the speed of the traveler, thus counteracting any tendency to gain speed due to the change in frictional force and pulling force. Actually, there may be a slight change in traveler speed; however, this probably is so small as to be negligible.

With further reference to the change in yarn tension with the change in bobbin diameter, this is an argument in favor of variable-speed drives for spinning frames.

Yarn Sticks to Slasher Cylinder

Technical Editor:

We have been having trouble with cotton warp sticking to the slasher cylinder. How can we prevent this? (8690)

Three things might be done to prevent cotton yarn sticking to the slasher cylinder.

1. See that the size is thoroughly boiled, and enough tallow or other type of softening agent is put in to keep the size from foaming.

2. See that the temperature of the size never gets below 200° F.

3. Never allow the yarn to go onto the cylinder until the temperature of the cylinder is as high as you intend to run it.

Knit Outerwear Design

Technical Editor:

We are sending you two samples of cloth. Sample A was made on an 18-in., 14-cut, 4-feed machine, with 792 needles and a 90-cut wheel. This gives a design 18 needles wide and 20 courses high, and a lap of 18 needles. Sample B was made on a 15-in., 4-feed machine, with 14 needles per in., 660 cuts on the cylinder, and a 100-cut wheel.

Disregarding the two-needle difference in the width of the design, can the horizontal center points of the diamond be made to lie vertically in the 15-in. machine, with a 40-needle lap, in the same relation to each other as they do in an 18-in. machine with an 18-needle lap? The 18-in. machine apparently makes a step-up of eight courses.

We should like to know whether or not a design can be made up to overcome this. (8694)

The design can be made the same on both machines regardless of the difference of two wales in the design fields. The wheels, in both cases, have five divisions. Consider Sample *A* made on a machine with 792 needles and wheels of 90 cuts (5 x 18).

792 ÷ 90 = 8 with 72 over.

This is equal to 9 minus 18.

792 ÷ 18 = 44 design columns.

44 ÷ 5 = 8 with 4 over, or 9 minus 1.

From these calculations, the lap is minus 1.

Now consider Sample *B* made on a machine with 660 needles and wheels of 100 cuts (5 x 20).

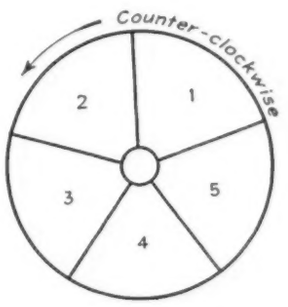
660 ÷ 100 = 6 with 60 over.

This is equal to 7 minus 40.

660 ÷ 20 = 33 design columns.

33 ÷ 5 = 6 with 3 over, or 7 minus 2.

Hence, the lap is minus 2.



Assume that the cam rings, carrying the wheels, and the wheels themselves, rotate in a counter-clockwise direction. Then the divisions of the wheels should be numbered in a counter-clockwise

direction as in the accompanying diagram. In the case of Sample *A*, the progression of the wheels is one division for each revolution, as follows: 1–2–3–4–5, and 1 again at the beginning of the sixth revolution,. In the case of Sample *B*, division No. 1 in each wheel is set up exactly the same way as division No. 1 in the corresponding wheels for Sample *A*. Divisions Nos. 3, 5, 2, and 4 are set up exactly as divisions Nos. 2, 3, 4 and 5 respectively for Sample *A*. Then the progression in the wheel will be 1–3–5–2–4, and at the beginning of the sixth revolution division No. 1 again will be at its starting point in design column No. 1.

Reclaiming Papermakers' Felts

Technical Editor:

Will you kindly give me some information about the reclaiming of fiber from used papermakers' felts? Are these felts washed before being picked? Are they subjected to steaming or to some other method to soften them up before picking? We will appreciate whatever information you can give us on this or allied subjects. (8583)

In the reclamation of papermakers' felts very much depends upon the condition and type of felt and the purpose for which it is to be reclaimed. Some felts can be washed and napped and converted into blankets, windbreakers, or something of a similar nature. In other cases the woolen fibers have lost their strength and resilience, the felt has become so heavily loaded with foreign substances, or so badly discolored from grease, dyes, or chemicals as to have practically no reclamation value.

Washing before picking would undoubtedly aid in the removal of foreign substances. Steaming or chemical treatment that softened the felt would probably be of additional aid in the removal of foreign substances. In the latter case care must be taken not to injure the woolen fibers.

Streaks in Silk Fabric

Technical Editor:

Kindly give me your opinion as to the cause of the filling streaks in the inclosed sample of silk fabric. Construction of this cloth is: warp 20/22-den. raw silk (yellow); filling 100-den. rayon (inferior yarn); reeded 50/4/2 = 42.60 in. in width; 84 picks per in. (8615)

The streaks in both finished and raw samples show that the trouble is due to loom conditions. Since we do not know what type of loom or method of warp mount was used in weaving the fabric, it is difficult definitely to determine the cause of the streaks; therefore, we are listing below several possible causes of the defect.

All indications are that the fabric has been woven with a rope let-off. If this is correct, the let-off is undoubtedly the cause of the defect, because an automatic let-off would cause streaks of different appearance (unless the take-up friction, being too tight, were causing the cloth to be jerked forward by the friction). If your looms are equipped with ropes, use a ⅜-in. or ½-in. sash cord. Secure one end to dead weight, wrap the cord around the beam flange, then run it down through a pulley secured to the floor, back up around the beam flange, and finally down on to the lever weight. This makes certain a more uniform take-up and eliminates one cause of streaks—movement of the beam in slight jerks.

On an 84-pick satin of this type, when employing rope let-off, a swinging (loose) reed will give more even cloth; a ⅛-in. movement of the reed is not too much.

If the take-up friction is too tight, it will pull the warp in such a manner that streaks are often discernible, especially if the pressure-roller felt is worn to any extent.

Another cause of defects of this type is take-up gears which are meshed too tightly, or pick wheels set so that the pawl catches two picks, rather than one.

Each of these causes produces a type of streak which, generally, shows what part of the loom is at fault. The samples submitted indicate that the shuttle tension is about as nearly perfect as can be obtained. Shiners having nearly the same appearance as the defects in the sample submitted are sometimes caused by incorrect filling tension, which causes the yarn to be dragged and stretched. However, with defects of this type, the beat-up on the tight pick will be the same space of beat-up as on a normal pick, and the shiners will appear on the sides of the fabric, and there will also be pull-ins on the selvages.

Most streaks due to loom trouble appear on cloth from a few looms only, but streaks due to improper let-off may be caused by any loom in the plant. The suggestions outlined should disclose the cause of the trouble.

Fringing Auto Robes

Technical Editor:

We are anxious to find out how manufacturers of auto robes set the twist in the fringe of the robe before fulling. The method we now use is very slow, and we believe there must be a better way to do this work. (8585)

Fringe making for automobile robes, as far as we know, is still a manual operation which involves selection of a suitable and uniform number of ends for each fringe, and the twisting or rolling of these together by hand until the necessary degree of twist has been inserted. Next, in order to prevent the strands of yarn from untwisting, a string is inserted, across the full width of the cloth, through the center of each twisted group. Following this the pieces are fulled. After fulling, the robes are cut apart in such a manner as to cut out the strings.

So far as we know, no mechanical apparatus has yet been marketed as a suitable substitute for manual fringe making, although various mills may have developed for their own use equipment which speeds the process to some degree.

Woolen Yarn Fuzzes in Reed

Technical Editor:

Inclosed is a sample of woolen yarn which we import from Scotland. With this we handweave tweeds of the Harris type at a reeding of 12 ends per in. No dressing is required, and the only finishing we give the fabric is dry-cleaning. We should like to weave this yarn at a closer setting, but this seems impossible due to fuzzing in the reed. Is there a warp dressing (preferably applied after the warp is in the loom) which will overcome this difficulty? With regard to desizing, would washing be necessary after weaving? If possible, we wish to avoid washing, as the character of the tweed is changed thereby. (8604)

It is readily understandable that when yarn like the sample inclosed is woven with more than 12 ends per in., the warp ends are so crowded together that they will chafe and rub on the reed. We know of no really satisfactory method of dressing warps after they are in the loom. Sometimes it has been found feasible to spray the warp between the beam and the back harness with a solution of gelatine-base size. This might be satisfactory in hand looms, but it is almost impossible to do a good job on a power loom, because the yarn does not have time to dry thoroughly between the time it is sprayed and the time it is woven. Furthermore, moistening the yarn has a tendency to make it stretch if there is much tension on the warp during weaving. Another way, which has worked fairly successfully on silk and rayon, is to spray the warp with a pure water-white mineral oil. However, we do not know whether this has ever been tried on a woolen warp.

The most satisfactory method of treating this warp would be to put it through a regular slasher or wet dressing machine. A good size formula for this type of yarn would be about 65 gal. of water and 19 lb. of a good gelatine-base rayon warp size. When the size has swollen in the water for about

20 min., gently heat it to about 140 to 150° F. until the gelatine is completely dissolved. Then, transfer this solution to the size box. Run the warp through the solution and dry it on either a can or air dryer.

If this yarn is received in skein form, it should be fairly easy to skein-size it. Using the same size solution mentioned above, work the skeins in it, hydro-extract them fully, and hang them up to dry. Turn the skeins at frequent intervals during drying, so they will not become stiff at either top or bottom.

As regards removing this size in the finishing operation, a dry cleaning will take out all of the oil and softener in the warp size. The weaving and beating up of the pick will probably break up most of the gelatine size, so that the goods will not be appreciably stiff; however, if stiffness is noticeable, it can be broken down on the shear. After the goods have been sheared down to the proper cover, the revolver is lifted and the goods are run over the shear rest; this will break up any remaining size.

We suggest that spinning the yarn tighter and more compactly would probably overcome this tendency to chafing.

Making Book-Binder's Tape

Technical Editor:

Kindly advise me as to the method of manufacture of book-binder's heading tape similar to the sample inclosed. (8691).

This type of tape (Fig. 1) should be made in a narrow-fabric loom carrying 48 to 60 pieces. It requires 10 harnesses. As shown in the accompanying harness draft (Fig. 2) the first six harnesses carry the plain-weave portion, and the back ends of the fancy edge. The remaining four harnesses carry the colored mercerized ends.

There are two or three choices as to what chain draft to use; one method is shown in the accompanying illustration.

We recommend trying a 30-dent reed to start with, and making a change if it appears desirable. The filling is entered two picks in a shed; there are 84 picks per in.

Warp Ends Run Together

Technical Editor:

We are inclosing herewith a dyed sample of all-silk chiffon. You will note that the center of the cloth has an open appearance, which, when examined under a glass, is shown to be caused by some of the warp ends running together. This condition is confined to the center of the cloth, and is not apparent near the selvages. We know it can be eliminated by using a reed containing twice the number of dents per inch and reeding the cloth one end per dent, instead of two as was done in this case. However, we want if possible to avoid the high reed count that would be necessary if the warp were reeded one end per dent. Will you, therefore, let us have your opinion as to the cause of the condition outlined; also your suggestions for eliminating it or cutting it down as much as possible in the cloth in question as now reeded? (8629)

Fabrics constructed in a similar manner as the sample submitted have a definite tendency toward the defect outlined, and it will probably be difficult, if not impossible, to eliminate the defect unless the construction is changed. As regards the fact that this defect shows only in the center of the fabric, the better appearance of the selvage is due to the fact that the sides of the cloth were held out firmly by the temple rolls. However, when examined under a glass, even these parts show a certain amount of rolling of warp ends.

Suggestions which might be of assistance are that you increase the tension of the warp, and that you use a skip draw, if this has not already been done. Further, it may be possible to make this fabric 2 ends S and 2 ends Z instead of 1 end S and 1 end Z as in this case.

As stated above, in fabrics of this type in which twist yarns are used, it is very difficult to overcome the appearance you note. This is because, when finishing, the twisted yarns have a tendency to roll and snarl, and it is extremely difficult to bring them back.

Worsted Warp Breaks Excessively

Technical Editor:

Inclosed is a sample of 70's-top, clipped-fleece worsted yarn used as warp in a gabardine fabric. The construction of the fabric is 90 x 44. It is filled with 30/2 cotton, and we use a 2 x 1 twill weave. We do not size the warp and have difficulty in weaving, due to excessive breakage. We have been advised by the yarn manufacturer that perhaps a little more twist would solve our problem. Will you kindly examine the yarn and let us know whether or not it is strong enough for the type of fabric in which we are using it? (8638)

From the spinner's point of view, the sample of yarn submitted is satisfactory in every way. The count of the yarn (average of five weighings) is 2/46s. Average breaking strength of five 80-yd., 80-loop skeins was 89 lb. This is very good, and extra twist might result in weakening the yarn. The yarn apparently does not have a ply twist hard enough for a gabardine; an available record shows 30 turns per inch in a 2/40, 64s quality which went into a gabardine.

We assume you have done everything possible to produce a warp in which all the ends have been warped under uniform tension, that harnesses are perfectly adjusted, and that neither reed nor shuttles are responsible for breaking the warp ends. However, we suggest that you make a study of the breakages at the loom. Have some disinterested person observe each break at a loom at which breakage seems to be high. If the looms are at fault, you will obtain the evidence. If it is really the yarn, you will obtain a lot of unclassifiable breaks. The observer should not guess at the cause of the break.

Reediness in Gray Cloth

Technical Editor:

We are inclosing a swatch of gray cloth, made with combination yarn. This is the stock type 150x100 combination, thrown 14 turns, twist on twist. We have made various constructions on this type cloth, and invariably have a "reediness" in the fabric. Will you kindly advise the cause of this condition, and suggest remedies. (8635)

It is our opinion that in this type of fabric you will find it almost impossible to prevent reediness, which is due to the low-count construction. It would probably improve the appearance of the cloth somewhat if the yarn did not lie so flat. Of course, this can be overcome to some extent by shrinking the cloth more during finishing. We also believe that if you can increase the turns of twist per inch up to, say, 21, it will close the appearance a trifle. Another means of achieving the same result would be to reed one in a dent, using a reed as fine as is necessary to obtain the same ends per inch. Sometimes using different twists in warp and filling will help to eliminate the condition.

We suggest you try the various suggestions until you find one which will be applicable to your particular problem.

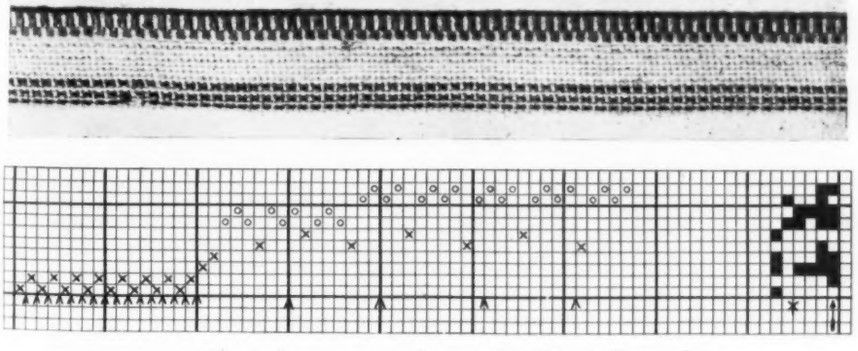


Fig. 1 (top; warp is horizontal). Fig. 2 (bottom)

COTTON SECTION—Chapter VII (Concluded) and Chapter VIII

BY IVAR MOBERG

Warp Stop-Motions

ENDS OUT are about the only cloth defects directly resulting from faultily adjusted warp stop-motions. However, these, in turn, often give rise to serious indirect defects, such as overshots, undershots, breakouts, torn selvages, etc. The cause is failure of the stop-motion to stop the loom, or delay of the stoppage to such an extent that broken ends have time to build up into defects of major proportions.

If the motion is of the mechanical type, the most common fault is lack of balance in the movement of the oscillating bars. Then, the knock-off may not be moved sufficiently by the bunter to knock off the shipper handle. In many cases the springs giving the negative movement to the oscillating feeler bars are under too great tension. On warp stop-motions in which the lay carries the bunter for the knock-off, the oscillating cam may be out of time. On some older types of motions, lint may have collected which prevents the drop wires from falling the full distance. With motions of the electrical type, failure to stop the loom is usually the result of improper contact of drop wires or a broken circuit.

CHAPTER VIII

Filling Stop-Motions

FILLING STOP-MOTIONS are of two types: side-fork and center-fork. With the exception of pick-and-pick looms, which require a center fork, looms can be equipped with either type of filling stop-motion.

Fig. C66 shows a Draper filling stop-motion of the side-fork type. To set this motion proceed as follows:

Make sure the lay guide is in good condition and so adjusted that it will prevent any lateral movement of the lay when the loom is running.

Next move the lay to extreme front center and so adjust the filling-motion stand that it will position the tines of the fork exactly in the center of the grate openings, with the back of the filling fork holder approximately flush with the back of the reed. The tines of the fork should now penetrate the grate approximately $\frac{3}{8}$ in. at their tips. Draper filling-fork tines should never be bent or altered. They are set to give maximum efficiency and any bending will reduce this efficiency. Lift the fork and see that the tips of the fork tines just clear the lay at the bottom of the cut-out. File-fit the stand, if necessary, so that the fork-tine tips will just clear the lay. First, however, make sure the lay is at the correct height, in accordance with the lay-height gage. Tighten the bolt in the filling-motion stand, but do not dowel-pin the stand for the time being. The filling-motion stand should now be at right angles to the lay.

Adjust the height of the filling cam-follower hub by moving its stud up or down in the slot of the cloth-roll stand until the two highest points of the filling-motion hook are approximately level. If Midget feelers are used, and the filling cam-follower trip has no height adjustment, the height of the cam-follower hub must be set so that the trip over-rides the lifting lever by $\frac{1}{8}$ in.

Next, adjust the cam-follower dog laterally on the cam-follower until the filling-motion hook is in the exact center of the filling-fork slide. Tighten it in this position. Then turn the loom over, or turn the filling cam on the camshaft, until the cam-follower end rests on the lowest portion of the filling cam. Loosen the bolt in the cam-follower end and move the cam follower up or down on the end until the filling-motion hook is $\frac{1}{8}$ to $\frac{3}{16}$ in. back of the wire loop of the fork holder. Tighten the bolt in this position, and make no further adjustment here.

Now, adjust the height of the filling-motion finger by so raising or lowering the starting-rod bearings that the finger extension will just clear the top of the end of the filling-fork slide. Level the starting rod by making corresponding adjustment of the bearing at the other end. Place the finger spring in position, and make sure it is pressing the finger against the filling-fork slide.

If the stop-motion is to be used for straight filling stops, place the straddle bug with its end-knob toward the center of the loom. The knock-off will now be through the lip, in the under side of the straddle bug, which catches on the knock-off lever when the filling-fork slide moves forward.

Now pull the shipper handle into "on" position and adjust the knock-off lever so that there is a barely perceptible play between the knock-off lever and the shipper handle when the other end of the lever is against the lip of the straddle bug. The lever must be swung slightly away from the filling stop-motion to clear the lip of the filling-motion trip, which is not used on straight filling stop.

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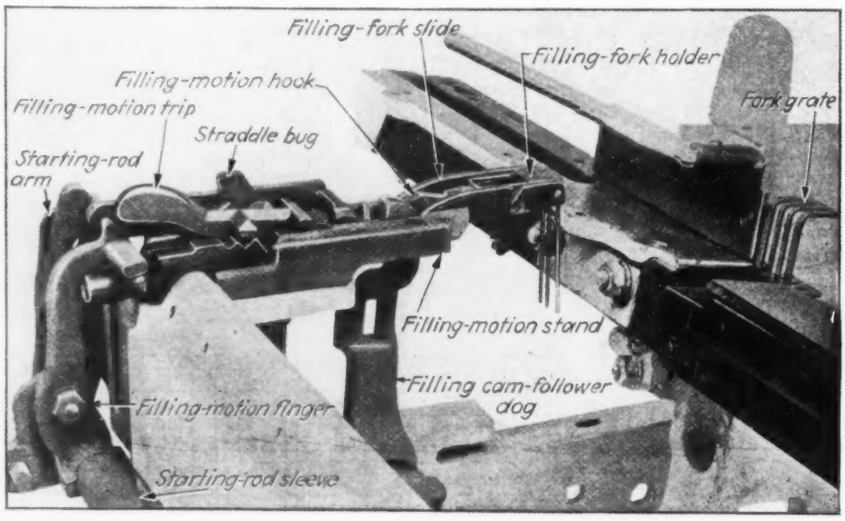


Fig. C66. Filling stop-motion of side-fork type

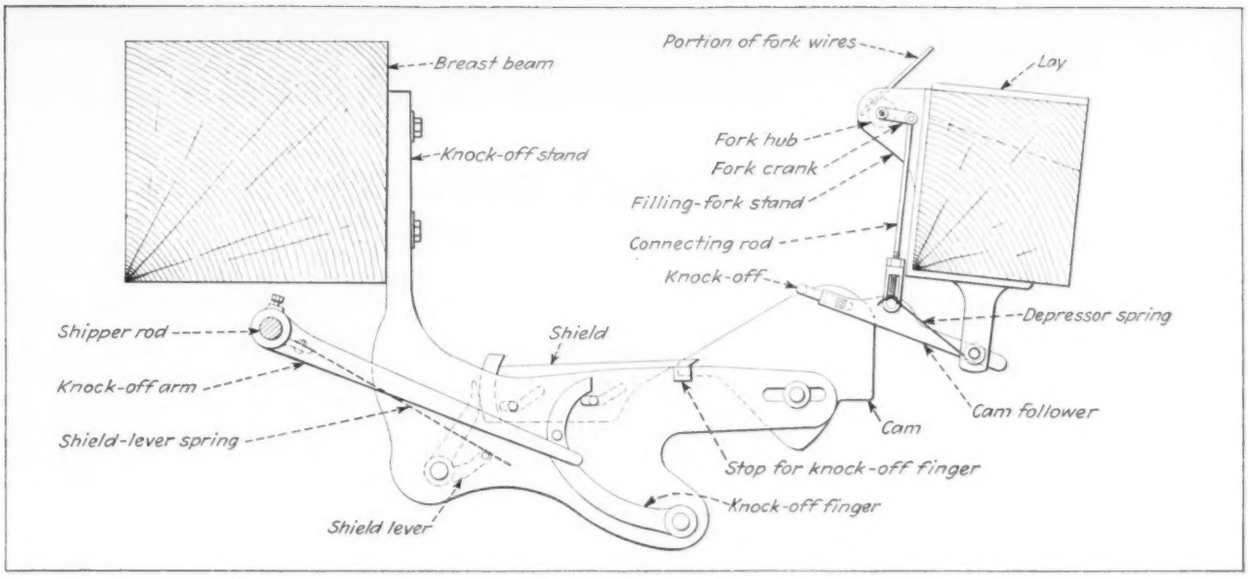


Fig. C67. Diagram of center filling stop-motion

Next, move the lay to extreme front center and adjust the filling cam on the camshaft to raise the cam follower until the filling-motion hook is just about to engage the wire loop of the filling-fork holder. Tighten the cam in this position, as no further adjustment of it is required. Turn the loom over in running direction to make certain the filling stop-motion knocks off the shipper handle.

Adjust the slack-up connection so that the take-up clutch becomes disengaged when the filling-fork slide is moved forward. If the loom is equipped with a ratchet take-up, the connection must be so adjusted that it will lift both take-up and hold-back pawls. In either case, the slack pawl will spring into action; the amount of slackening up on the cloth depends upon the amount of freedom of the slack pawl. Cut the filling on the bobbin in the shuttle and make filling stops in this manner until the freedom of the slack pawl has been so adjusted that neither a thick nor a thin place will occur in the cloth when the loom is restarted after a filling break.

TO CHANGE the filling stop-motion from straight filling stop to transfer indication, it is necessary only to turn the straddle bug over, so that its end-knob will be against the starting-rod arm, and to swing the knock-off lever close to the filling-fork slide so that the lip of the filling-motion trip can engage it and thus stop the loom. With the filling-fork slide in normal position, move the filling-motion trip into the last (deepest) notch on the slide and make sure the lip of the trip has dropped down just inside the knock-off lever, ready to knock off the loom on the next forward movement of the filling-fork slide.

It will be seen that there are three notches in the filling-fork slide. On the first two notches the filling-motion trip is too far forward to allow its lip to engage the knock-off lever and stop the loom. But on the second successive movement of the filling-fork slide, the filling-motion trip drops into the deepest notch, and is then in position to permit its lip to engage the knock-off lever. On the next successive movement of the slide, the loom will be knocked off. Thus, it requires three successive movements of the slide to stop the loom. Three bobbins are therefore transferred in succession from the battery, but the shuttle eye must take the filling from the third bobbin, or the loom will be knocked off.

Sometimes looms are equipped with double filling forks, one at each side of the loom. In such instances, the action of the right-hand fork is transmitted to the left-hand fork by a sleeve over the starting rod. The setting and timing of the right-hand fork is the same as already described.

Center filling stop-motion are shown in diagrammatic form in Fig. C67. As this stop-motion is often applied to looms which previously were equipped with side-fork motions, it is appropriate to give here general instructions for installation of these stop-motions.

[Crompton & Knowles Loom Works has pointed out that actual mounting dimensions vary according to construction details of the particular loom. They therefore recommend that if the center stop-motion parts which are received from the manufacturer do not have with them a set of instructions for their application and adjustment, they should not be put on until such instructions have been obtained.]

First, determine the location of the cut-out in the lay for the feeler wires. If the looms are narrow, and no center braces of lay and breast beam interfere, the cut-out should be located at the middle of the lay. On wider looms the filling-fork stand and the knock-off stand must be so located that they will have no interference from the center braces, and the cut-out in the lay made accordingly.

When the proper position for the cut-out has been determined, proceed to cut out the well. On some looms it may be necessary to extend the cut-out into the backstay in order to clear the fork wires. However, do not cut the backstay unless necessary, with the reed in the loom. Hold the fork stand against the lay, with the fork wires centered in the cut-out, and mark screw holes in the stand on the lay. Using bolts or woodscrews, fasten the fork stand in proper position. Then, clamp the knock-off stand to the breast beam and so adjust it that the knock off finger lines up with the knock-off. Turn the loom to bottom center, or a trifle beyond, and check the position of the raised knock-off finger in relation to the knock-off, with the latter well into the cam follower, which is also known as the knock-off dagger. The knock-off should at this point be in contact with the knock-off finger. On some looms, it is necessary to cut into the breast beam for the knock-off stand in order to obtain this position.

(The discussion of filling stop-motions will be continued in an early issue.—EDITOR.)

LOOMFIXERS' MANUAL

WOOL SECTION—Chapter IX

By BENJAMIN F. HAYES

Filling Stop-Motions

FILLING STOP-MOTIONS usually used on woolen and worsted looms are of the type known as No. 9, which is manufactured by Crompton & Knowles Loom Works. Stop-motions play a very important part in the successful operation of looms, and they should be carefully studied by all who wish to become loomfixers.

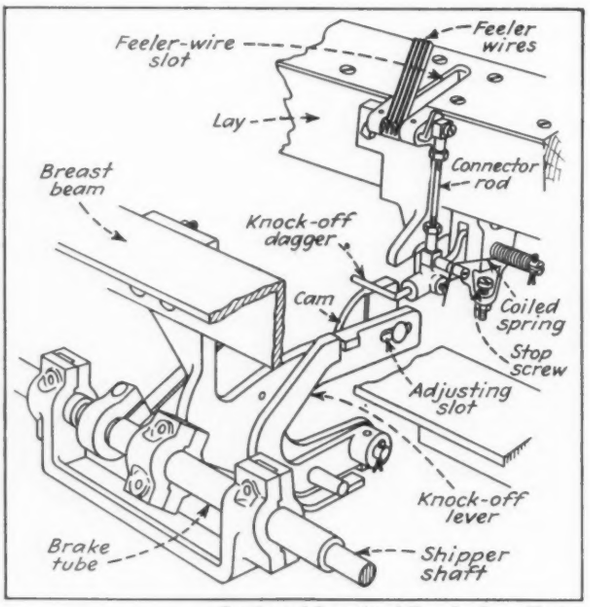
The feeler wires of filling stop-motions can be so adjusted that the filling will be contacted at any desired point on the wires. The exact point at which the wires should touch the yarn depends on the weave of the fabric being produced. When a plain-weave fabric is being woven, the filling is trapped on every pick by every warp end; but, if a 4/1 satin weave is being made, the filling is not held anywhere near so much. On plain-weave fabrics, therefore, considerable energy is required to push a broken pick down into the slot and thus to stop the loom. On weaves with fewer interlacings, somewhat less force would be needed. Now, if the feeler wires contact the filling near their tips, quite a bit less pressure is exerted on the yarn by the wires than would be the case if the wires contacted the yarn nearer their lower ends.

Filling stop-motions can be adjusted so that they will take down into the slot every incomplete pick, regardless of whether or not the yarn has passed the feeler wire. One thing that must be guarded against is false stops—the stop motion knocking off the loom when the filling is not incomplete. These are sometimes caused by improper setting of the feeler wires, which are given so much leverage that they press the filling into the slot even though the pick is not incomplete. Naturally, such a condition is much more likely to be encountered on weaves in which interlacings are relatively far apart than on those having more frequent interlacings.

The damage done by false stops is of two kinds. First, it cuts down production. Second, a weaver who has become used to false stops may restart a loom without checking, on the assumption that it was just another false stop. Yet, after several inches have been woven, it is frequently found that a pick was incomplete. Thus, a defect is produced in the cloth.

On plain-weave fabrics there is, of course, little trouble from false stops. However, on cloths of this type incomplete picks frequently get by without the stop-motion stopping the loom. This must be guarded against.

BEST PRACTICE is to readjust the filling stop-motion for each new warp that is put in a loom, so that it will always be set at the most suitable point for the cloth in question. This applies even though the weave may be the same as that of the preceding warp; if the new warp is a few inches wider or narrower, to obtain highest efficiency the filling stop motion should be readjusted to the most suitable point for the particular fabric.



Courtesy of Crompton & Knowles Loom Works

Fig. W10. Diagrammatic view of No. 9 center filling stop-motion

The position at which the feeler wires will contact the filling is controlled by the cam shown in Fig. W 10. This cam also serves to lift the feeler wires so shuttles can pass freely under them. The cam can be moved either toward the breast beam or the lay, by sliding it forward or backward in the slot through which it is bolted. When it is moved nearer to the lay, the feeler is caused to drop with the tips of the wires on the filling, thus making for less pressure on the yarn. Conversely, when the cam is moved toward the breast beam, the lower portions of the wires will contact the yarn, and pressure will be increased. Of course, sufficient room must always be left between cam and knock-off, so that the dagger can connect with the knock-off and stop the loom when necessary.

As stated before, the cam must lift the feeler wires sufficiently so that shuttles can pass freely under them. Otherwise, feeler wires would constantly be getting bent. The wires should clear by about 3/16 in. the front wall of a shuttle placed under the fork and against the reed.

On older types of looms, on which the connector rod is not adjustable, a loomfixer can, by removing the rod and tapping it lightly, draw it out until it is about 1/16 in. longer. This will raise the tips of the wires about 3/16 in. However, it also raises the wires in the slot. Therefore, the main casting must likewise be readjusted.

The connector rods on up-to-date looms are threaded and fitted with nuts which make their adjustment simpler.

The motion must also be so adjusted that with the dagger resting on the casting between the cam and the knock-off, the feeler wires will be near to but not touching the bottom of the feeler-wire slot. If the wires are too high in the slot, loosen the main casting of the stop motion, which is bolted to the breast beam. Lower the casting a bit, retighten it, and again observe the position of the feeler wires in their slot. Continue until the wires are in correct position.

(Mr. Hayes' discussion of filling stop-motions will be continued in an early issue.—EDITOR)

STAPLE COTTON FABRICS

By JOHN HOYE

Fabric Technician with W. Harris Thurston, New York

This forty-ninth installment of Mr. Hoye's series of articles on staple cotton fabrics—which began in the January, 1936, issue—begins the discussion of table-cover and napkin fabrics.

Table-Cover and Napkin Fabrics

Table-cover and napkin fabrics include jacquard-woven damasks, dobby-woven staple fabrics, and dobby-woven novelty fabrics, as well as converted fabrics known as crash.

TABLE DAMASKS are jacquard-woven, lustrous fabrics with elaborate decorative designs, usually of floral patterns. The patterns, although flat, are distinct and stand out because of the contrasting light reflection from the satin-weave floats of the warp and filling yarns. The majority of table damasks are bleached white. Some are made with colored borders dyed in pastel shades with vat dyes. Also they are made with vat-dyed warp and all-white filling.

The finish used for damasks may be a plain calendered finish, schreinered finish, mercerized finish, or permanent finish. Some of the better qualities are both mercerized and schreinered; others are schreinered only. The cheaper qualities generally are given a plain calendered finish. The permanent linen-like finish is the most expensive and is used on the better qualities. It holds down the projecting ends of the cotton fibers and gives a smooth, firm finish to the fabric. It will withstand repeated launderings and prevents the fabric from becoming too soft and fuzzy and eliminates the necessity of starching after laundering. Table damasks are reversible, although the face side is the one on which the filling sateen forms the background and is the side which is schreinered in finishing.

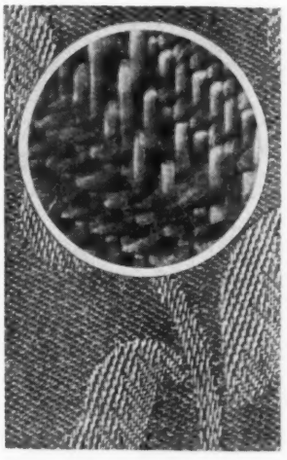


Table damask, 68 in., 68x72, 1.22 yd., white rayon warp and 2-ply colored mercerized filling, finished 64 in.

Usually damasks are made with 5-harness satin floats with a construction which varies from 62x48 to 80x76. Damasks made with finer construction, using 8-harness satin floats, are known as double damasks. To compensate for the longer floats and fewer interlacings in these fabrics, a higher yarn count is used; e.g., 96x104. Very few double damasks are made of cotton, although they are common in the linen trade.

Table damasks are woven in continuous-length pieces with matching filling borders at intervals to form a balanced or square pattern tablecloth; e.g., 64x64, or 72x72 in. Also they are made without filling borders, the pattern being continuous throughout. Some also are made with rayon warp and cotton filling, or vice versa.

Cotton-rayon table damasks are made with white continuous-filament rayon yarns and colored mercerized ply yarns. Also, they are made with white and colored yarn fancy patterns or plaids. Domestic and imported qualities are used.

Damasks are woven in gray widths of 39, 48, 58, 64, 68, 78, and 98 in. These are finished and sold mostly as yard goods in widths of 36, 45, 54, 58, 64, 72, 80, and 90 in. Also they are made up into tablecloths of various sizes, such as 36x54 in., 45x54 in., 54x54 in., 64x72 in., 72x90 in., and 90x108 in.

Some damasks are made up into table tops. These are square—36x36 in. and 45x48 in., and are used to cover the regular tablecloths in restaurants, etc.

Napkins are cut and hemmed into sizes of 15x15, 18x18, 20x20, 22x22, and 24x24 in.

Warp yarns: 16s to 30s cotton, 30/2 mercerized, 300-den. rayon. Filling yarns: 18s to 26s cotton, 30/2 mercerized, 150 to 300-den. rayon.

Examples of table damask—gray constructions:

58 in. 60x84 1.74 yd. floral pattern.
58 in. 62x48 2.00 yd. floral pattern.
58 in. 96x104 1.51 yd. double damask, floral pattern
72 in. 68x72 1.15 yd. rayon warp and 2-ply colored mercerized filling
58 in. 96x72 1.63 yd. 2-ply mercerized warp and rayon filling, piece-dyed, imported

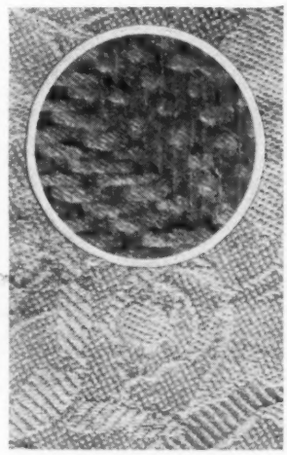
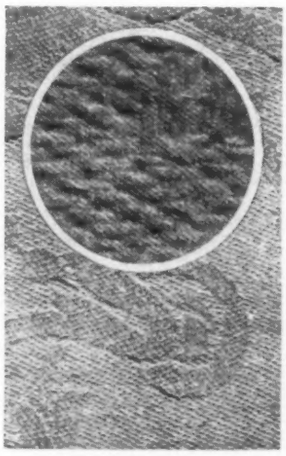


Table damask, 58 in., 64x74, 1.63 yd., finished 54 in.



Double damask, 58 in., 96x104, 1.74 yd., 8-harness satin floats, combed yarns

NEWS OF THE MONTH

Stamp Plan for Cotton Goods

Cotton goods are about to be included in the food stamp subsistence plan of the Federal Surplus Commodities Corp. Officials have agreed on the principle of adding cotton, are working out mechanical details, and expect to be offering cheap clothing to the poor for stamps within six or eight weeks. Of the 20,000,000 people now receiving public aid in various forms, 15,000,000 would participate in stamp purchase of food when the plan is in full effect, if experimental city percentages hold nationally. Labor Department figures on the skimpy clothing of the poor indicate that tremendous quantities of cotton would be consumed if offered under a stamp plan, the only limit being the amount of money Congress would allow FSCC to spend. The clothing stamp plan will differ somewhat from the food plan.

Subsidy May Die Any Minute

A fourth cut in the cotton export subsidy rate may come at any moment. The Department of Agriculture has given warning that it will give no notice. Also the subsidy might be entirely discontinued without notice. Such abrupt action is necessary, officials say, to forestall disruptive speculation. The Government is scraping bottom of its original $36,500,000 subsidy fund, but it has two or three other sources which will add four or five million to the kitty. The fact that these additional sources are mentioned seems to indicate that Mr. Wallace will not shut off the subsidy entirely, but will let it dribble along at a low rate. The three recent rapid-fire cuts, all within a week, were from $1.50 per hundred to 75c to 40c to 20c.

Wool Mill Wages Up 7 to 10%

Stabilization of the labor situation in the wool goods field has been effected by a wage advance lead by American Woolen Co., which on Dec. 22. announced an advance of 7 to 10% in wages effective Feb. 5. At the same time Pacific, Arlington, Monomac and various Stevens mills took action at the same time and many others followed.

American Viscose Corp. raised wages 6% effective Jan. 1 at all plants except Marcus Hook and Front Royal. Since September advances had been made by Celanese, Industrial, North American, American Bemberg and Imperial Rayon.

Scattered mills gave Christmas bonuses varying from $15 to $25.

Wage-Hour Hearings

Public hearings on the minimum wage recommendations of Industry Committee No. 8 for the Knitted Underwear and Commercial Knitting Industry, and of Industry Committee No. 7 for the Knitted Outerwear Industry have been scheduled to begin on Jan. 16 and 22, respectively, at 10 A.M. at the Raleigh Hotel, Washington. The underwear committee, chairmaned by John P. Devaney of Minneapolis, recommended 33½¢ per hour; outerwear committee, under Charles Ray of Holyoke, Mass., recommended 35¢. Any interested parties, supporting or opposing the recommendation, may appear.

On Jan. 4, after long delay, Industry Committee 1A for wool submitted its report to the Wage-Hour Administrator, recommending a minimum rate of 36c. Because of committee disagreement, the Administrator set the percentages of demarcation between "wool" and other textiles at a maximum of 45% wool in yarns and 25% wool in fabrics. Committee 1A disagreed with the Administrator's definition. The wage resolution was approved by a vote of nine to four. At this writing no date had been set for hearings.

In the field of exemptions there is this to report: filing of briefs in a review of a determination and order dated Oct. 24, 1939, regarding employment of learners in the knitted wear industry, has been postponed from Dec. 21 to Jan. 15, and filing of rebuttal briefs is postponed from Dec. 30 to Jan. 24, 1940. The order of Oct. 24 authorized issuance of certificates to pay 22½¢ to 5% of total sewing and knitting machine operators other than on hosiery and knitted gloves, for a period of eight weeks.

News: Man Bites Dog

A South Carolina textile manufacturer recently received a letter from a business man in Massachusetts, in which the latter said:

"I understand that you are going to build a mill. Why do you spend all this money for a new mill in the South, when I can sell you an up-to-date mill here in New England, of 100,000 square feet of floor space, water power, railroad siding, no labor trouble, and your taxes would be about $3,500 per year. Located in an all-American town of about 7,500 people, good first-class cot-

New Orleans debutantes served as mannikins for the presentation of a group of advance 1940 spring and summer fashions at the Dec. 12 meeting of the Cotton Consumption Council at the Roosevelt Hotel. The styles shown and supplementary exhibits of decorative and apparel cottons were presented by the Cotton-Textile Institute, New York, under the direction of Chas. K. Everett, who is secretary of the Council.

ton mill workers. Price, $45,000. I have another mill almost in the same yard which has 60,000 square feet of floor space, for $35,000." Manufacturing costs, the letter adds, are much less in New England than in the South.

South Carolina textile officials stated that the combined prices offered by the New Englander amount to less than one-third of the cost which would be involved in the erection of a new mill in South Carolina of the same size.

Murchison Gets Around

Within about one week, Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, addressed the National Association of Commissioners, Secretaries and Directors of Agriculture in Chicago; talked to a luncheon meeting of textile manufacturers from Fall River and New Bedford at Fall River; and addressed the Cotton Consumption Council at its meeting at New Orleans.

Apex Asks Reconsideration

The Apex Hosiery Co., Philadelphia, has petitioned the U. S. Circuit Court of Appeals to reconsider its verdict of Nov. 29 when it reversed the $711,952 triple damage verdict obtained by the mill against Branch 1 of the American Federation of Hosiery Workers earlier in the year. If rejected, Apex will take the case to the U. S. Supreme Court.

Wool Top Trading Scrutinized

According to the statement of the chief of the Commodity Exchange Administration, Department of Agriculture, that administration is currently scrutinizing daily reports on wool top trading to detect any evidence of manipulation or illegal practices.

New Kind of Rug For Home Workers

A new kind of rug for home workers has been invented by C. H. Gunter, a native of Wales, whose company was scheduled to begin operation at Gulf, N. C., early in January.

The idea is a loomless rug-making set consisting of webbing cut to the size of the proposed finished rug upon which will be printed the color and pattern of the rug. With the webbing, thread will be included in proper measurements for each color and design. A looping needle, invented by Mr. Gunter, completes the set. Sixteen to eighteen work hours is the required time for the manufacture of one rug. Mr. Gunter perfected his looping device after studying the crude methods used by the Welsh women in their home-made rug projects.

TEXTILE MILL SIDELIGHTS—No. 13

"Don't stand there like a fool, Sparks. Do something! Get my candid camera out of my desk!"

Council Hears Arnold

The first public activity sponsored by the recently organized National Council of Textile Industries was the dinner to Thurman Arnold, assistant attorney-general of the United States, at Waldorf-Astoria Hotel, New York, Jan. 5, attended by a large and representative group from the three organizations comprising the Council: Cotton-Textile Institute, National Federation of Textiles and National Rayon Weavers Association. The meeting was completely off the record.

Revised Market Clause

The Industry Committee of the Association of Cotton Textile Merchants of New York has recommended revision of the market clause for use on sales contracts to the following:

"In the event of a strike or lockout at the subject mill, buyer's and seller's rights to cancel under the Casualty Clause of the Standard Cotton Textile Salesnote shall run without the right to collect damages. Price on any portion of this contract, upon which title has not passed, is subject to adjustment by the amount that seller's cost on said portion is affected by Federal legislation enacted hereafter, imposing any tax or other charge on cotton or other fibers, or on the processing of products thereof or on the sale of such products; provided that if paid and such taxes or other charges are refunded to seller, or if unpaid and for any reason seller is legally relieved from payment, the amount so charged shall forthwith be credited to buyer."

Here's Diversification!

Botany Worsted Mills, Passaic, N. J., are about to enter into a distribution program for a line of cosmetics, bearing the Botany name. Botany formerly sold the oils and greases from wool fleeces to outside cosmetic manufacturers. Of these lanolin is the best known and it has come to be recognized as a most important ingredient in any face cream.

Defines Percale For Bed Sheets

Establishment of a minimum count for cloths which may correctly be called "percale" in the sheet and pillow case field was effected by the Association of Cotton Textile Merchants of New York. Nineteen firms subscribed to the declaration which indicates endorsement by nearly all manufacturing sources.

The "percale" description shall be

An adaptation of costume worn by Mary Martin in "The Great Victor Herbert," adapting the 1900 shirtwaist theme for 1940. Skirt is of rayon faille. This fashion, which will be available at retail at about $6.50 each for shirtwaist and skirt is the result of a new American Viscose Corp.-Hollywood promotional tie-up.

confined to cloth constructions having a thread-count of 180 threads to the square inch or more, and after June 1, 1940, no label bearing the word "percale" is to be affixed to any product of a lower thread count. Between now and the effective date the use of the term "percale" on products below the 180-thread count is to be limited to existing obligations and commitments. The rules apply equally on proprietary and customer brands.

Origin of Cellulose Discovered

Discovery of the fact that cellulose originates from two small ring-shaped structures in specialized organs of plants, and that presence of chlorophyll is unnecessary for its formation, were announced by Dr. Wanda K. Farr, at a recent meeting of the American Association for the Advancement of Science. Dr. Farr, who is director of the cellulose laboratory of Boyce Thompson Institute, Yonkers, N. Y., describes the disk-like shaped special plant organs as complicated, sub-microscopic chemical factories. Each of the two small rings disintegrate into four particles of uniform size, which have been identified as cellulose.

Canadian Textile Status

A large number of Canadian textile mills are devoting a considerable portion of their productive equipment to making fabrics for use by the armed forces of the Dominion. It appears likely now that the industry will be able to supply an amount of cloth and blankets which will make it unnecessary for the Government to turn to sources of supply outside its borders, according to a spokesman for the textile industry in that country.

The recently formed Cloth and Blanket Committee of the industry has apportioned Government orders for woolen fabrics to approximately two-thirds of the country's 60 woolen mills. Distribution of contracts was made after a study of available equipment, on the basis of utilizing each type of equipment to best advantage. A number of knitting mills are also running approximately 50% of their machinery on Government orders.

It is pointed out that all cloth being produced is for use by the Canadian Government and its agencies, rather than for export purposes.

Chemical Exposition Held

Numerous products having application in textile mills were exhibited in the Seventeenth Exposition of Chemical Industries, held Dec. 4 to 9, in Grand Central Palace, New York. Nylon and Vinyon were prominent in the display of the American Chemical Society. There was also an exhibit of the steps in the manufacture of glass yarn, and of several types of industrial fabrics produced from this material. Machinery of chief interest to textile men was that for production of rayon yarns and that for drying textiles in various forms. Several manufacturers of chemicals displayed products used in textile processing.

Fiber to Fabric With No Spinning or Weaving

Permanent displacement of burlap by cotton fabrics made without spinning or weaving was predicted last month by M. A. Goldman, of Fiber Products Laboratory, New Brunswick, N. J. Other potential uses for similar types of fabrics, which are produced by parallelizing cotton fibers and then binding them chemically, are backing for oilcloth, linoleum, and pyroxylin-coated fabrics; window shades; tent cloths; upholstery; etc. One present application is in manufacture of bandages. The new process is said also to permit the utilization for textile purposes of kapok, milkweed, and other fibers which are not readily spinnable.

The exact method employed in producing the fabric depends on the purpose to which it is intended. Essentially, however, it consists of impregnating fibers, which have been carded and formed into a lap and parallelized, with latex or another suitable adhesive or binding agent. For bandages, towels, napkins, etc., where absorbency is important, the binding material is applied to the surface of the lap in thin lengthwise and crosswise stripes, each about $\frac{1}{16}$ in. apart. This gives a checked appearance to the fabric, provides sufficient strength, and still leaves a large percentage of most of the fibers in an uncoated condition. Fabrics of any desired thickness can be obtained by laminating the required number of laps.

Sound Trade Stressed at Pan-American Dinner

"A real effort is being made to help our southern neighbors expand their sales in this country," declared W. T. Moran, assistant vice-president of the National City Bank, in an address delivered at the Pan American Goodwill Dinner held last month at the Astor Hotel, New York, under the sponsorship of the Textile Square Club. This was the keynote of the meeting, sounded after Mr. Moran had pointed out that "After two months or so of feverish buying Latin American importers realized that the precedents of the last war could not guide them in the pres-

TEXTILE CALENDAR

Hosiery Industry Conference, fourth annual meeting under auspices of four associations, Waldorf-Astoria Hotel, New York, Jan. 17 and 18, 1940.

Sixth International Heating and Ventilating Exposition, Lakeside Hall, Cleveland, Ohio, Jan. 22 to 26, 1940.

Philadelphia Textile School Alumni Association, annual banquet, Philadelphia, Mar. 1, 1940.

Committee D-13, A.S.T.M., spring meeting, Charlotte, N. C., March 13 to 15, 1940.

Phi Psi Fraternity, 37th Annual Convention, Bellevue-Stratford Hotel, Philadelphia, April 11 to 13, 1940.

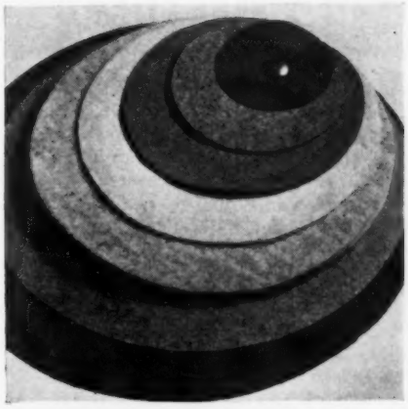
Knitting Arts Exposition, 36th annual exhibit, Commercial Museum, Philadelphia, Apr. 15 to 18, 1940.

National Cotton Week, May 17 to 25, 1940.

American Society for Testing Materials, annual meeting, Atlantic City, N. J., June 24 to 28, 1940.

National Safety Congress, Stevens Hotel, Chicago, Oct. 7 to 11, 1940.

American Association of Textile Chemists and Colorists, 20th annual meeting, Hotel Commodore, New York, Oct. 18 and 19, 1940.



Vinyon felts of various types developed by American Felt Co. Samples illustrated are cotton felts, in which from 15 to 20% of Vinyon has been used to replace wool formerly necessary in felt making. The materials are produced under heat and pressure and can be aftertreated with sizing, latex, or other materials, and can be combined or coated. It is possible also to combine with the Vinyon any other types of fibers such as wool, jute, glass, asbestos, etc., to make a wide range of useful fabrics. It is stated that the new material shows greater uniformity and less voids than do regular felts, as a result of which considerable interest is being shown for application in air and liquid filtration fields. Felts illustrated from top to bottom are blue lining, latexed doubler, red lining, white heel pad, soft gray bulk, filter, and oxford lining.

ent instance" because the world productive power is higher in all countries. Sound economic methods of trading, he insisted, will have to be worked out before we can expect a large permanent increase in business done below the equator.

Another speaker was A. Manuel Fox, of the U. S. Tariff Commission. The Textile Square Club was assisted in arranging the dinner by the Textile Export Club, the Cotton-Textile Institute and the Spanish Exporters Club.

Textile Engineers Annual Meeting

One feature of the annual meeting of the Textile Division of the A.S.M.E.—a symposium on spinning, weaving, and finishing spun rayon—was reported in our December issue. On page 74 of this issue appears an abstract of a paper on the relationship between cloth widths and garment manufacturing costs. Other features of the meeting, which was held Dec. 6 in Philadelphia, were presentation of a paper by Donald C. Scott of Ludlow Mfg. Co., on a new method of testing the stiffness of yarns and twines; one by Ormand W. Clark, of Calco Chemical Division, American Cyanamid & Chemical Corp., on machinery used in fast-color dyeing; and one by Prof. Edward R. Schwarz, of Massachusetts Institute of Technology, on the engineering aspects of textile technology.

Another Rayon Plant?

Rumors of another plant for American Viscose Corp. emanated from Wilmington, Del., following a stockholders' and directors meeting on Jan. 3. It will be in the South, rumor said, probably near Greenville, S. C., and will cost about $7,000,000.

John G. Jackson, formerly vice-chairman, was elected chairman of the board, succeeding Samuel A. Salvage, retired. W. B. Olmstead, Jr., sales manager, was elected a director, and W. H. Brown, secretary and assistant treasurer, was named treasurer.

Carpet Season Starts

The spring 1940 carpet season was opened early in January with no price advance other than elimination of rebates which figures a 4% gain. Stocks are normal and higher prices are in prospect. The Institute of Carpet Manufacturers met Jan. 3.

Further Adjustments in Finer Rayon

Although all companies did not include the 75-denier viscose process yarn in the advance of a month ago which affected principally the 50-denier, it is understood that the 3¢ advance will probably find general acceptance in the next price naming. The 75-denier seems somewhat out of line in price, and the purported increase will not appreciably affect its position in the market.

Reports covering the month of December indicate that American producers of rayon yarn shipped to their domestic customers 30,900,000 lb. as compared with 32,800,000 in November, 34,100,000 in October and 21,700,000 in November, 1938.

Among the new fibers, Vinyon has come upon the market and is quoted at $1.80 for 60-denier, 46-filament. The 120-denier, 92-filament, is at $1.65 and the 180-denier, 138-filament, at $1.50. For the present the yarn is going principally into industrial fabrics, but it is believed to have a future in the hosiery industry and among weavers of dress fabrics.

Increased imports of cotton hosiery from China have been reported at an amazingly low price. In October 47,685 dozen pairs of such hosiery came from China at the average declared value of only 12½c a dozen. This compares with a Japanese cotton hosiery average of 28c a dozen.

"Fashions Out of Test Tubes" was staged by the Congress of American Industry under the auspices of N.A.M. at their recent convention in New York. Out of a multitude of attractive garments made from synthetics, the above is an afternoon dress made from casein of milk. The transparent bag is from a plastic.

Foresees Higher Wool Goods Prices

When wool goods mills open their lines for the fall 1940 season it seems likely to the mill agents that advances over the last previous spring opening should average at least 35 to 45¢ a yard. Total unfilled orders are reported at 27,000,000 yd. (exactly the same figure as at this time a year ago), and men's wear mills are producing about 2,500,000 yd. weekly. This means current orders will carry for about ten weeks, but actually before that time the new fall season will have started and there will be duplicate business for spring.

The advance in price of goods for fall is based soundly upon current wool values and upon the higher wage costs which mills will have to figure into total costs beginning early in February.

(For "This and That," see page 113)

"America's finest fabrics owe much of their perfection to the perfect quality of America's finest bobbins."

CLOVERLEAF BOBBINS

Manufacturers who throw their own yarn know just what the super-strength, uniform quality, perfect balance and *complete suitability* of each type of Clover Leaf Bobbin means in terms of (1) higher speeds, (2) greater precision, (3) better fabrics and (4) bigger profits . . . Ask *your* throwster.

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NEWS ABOUT MEN

Clifford D. Cheney was last month elected chairman of the board of directors and assistant to president **Ward Cheney** of Cheney Bros., Manchester, Conn. **Henry R. Mallory** was elected vice-president, and **John W. Nickerson** was appointed general superintendent of all production units.

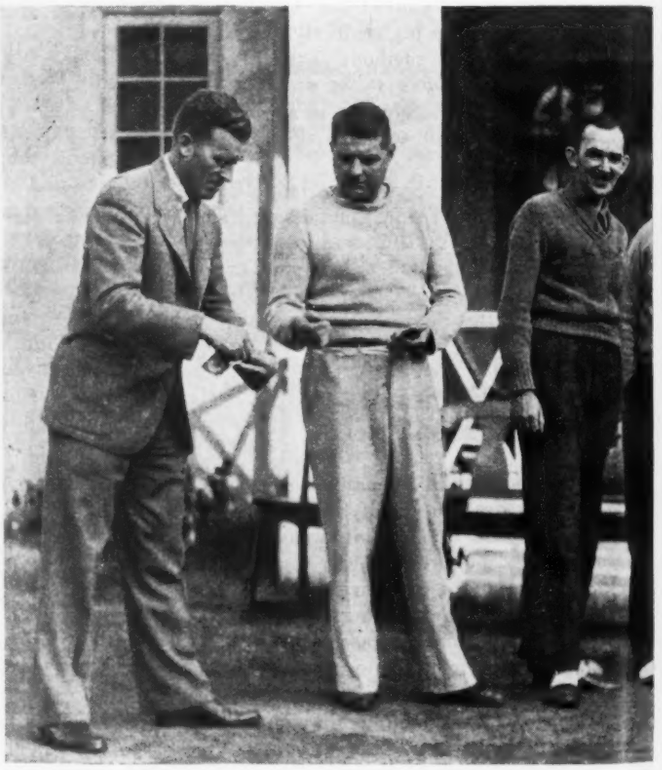
David D. Carroll, Bennettsville, S. C. has been elected president and treasurer of Marlboro Cotton Mills, McColl, S. C. **J. A. Baugh, Jr.,** McColl, S. C. was named vice-president and general manager and **E. H. McGregor,** Laurinburg, S. C. was named secretary. **D. K. McColl** of Bennettsville, S. C. and **B. M. Edwards** of Columbia, S. C. were put on the executive committee.

P. A. Gwaltney, formerly president of Marlboro Cotton Mills, McColl, S. C., has been made an official of the Plymouth Mfg. Co., a recently chartered cotton manufacturing company located at McColl, S. C. The company has been capitalized with $5,000 capital stock and the officers are: **Edwin E. Lindgren,** president; **David H. Jackson,** secretary and **John E. Cosgrove,** treasurer. **F. F. Adams** of McColl, will also be associated with the new concern.

H. C. Folk, for a score of years an officer and director of the Santee Mills, Bamburg, S. C., recently celebrated his 80th birthday.

Joseph H. Separk, prominent North Carolina textile executive, has been elected president of the Gaston-Lincoln County Association of Duke University Alumni. Mr. Separk is also on the board of trustees of Duke University.

Guillermo H. Villa, technical director of Fabrica de Hilados Y Tejidos del Hato, Medellin, Colombia, has been paying a several weeks' visit to this country, contacting textile machine builders and other suppliers. He was accompanied by his assistant, **Luis Echavarria.** Both of these men are graduates of Lowell (Mass.) Textile Insti-



Prize winners in the fifth Annual Medal Play Handicap tournament over the Pine Needles golf course in Knollwood, Southern Pines, N. C. by a group of executives of the Burlington Mills Corp. Left to right William F. Klopman of Ridgewood, N. J., vice-president of the corporation, Thomas T. Dodge, New York winner first prize, Frederick D. Frissell, Jr., Burlington, N. C. fourth prize; C. W.

tute, Mr. Villa in the class of 1924 and Mr. Echavarria in the class of 1935.

C. D. H. Prussing has resigned as president of West Chester (Pa.) Hosiery Mills and will devote his entire time to the newly organized Viking Finishing Co., Philadelphia, which is specializing on the finishing of full-fashioned hosiery.

Joseph B. Warne, after 40 years in the field, is retiring from position of president and treasurer of Joseph B. Warne, Inc., New York, to become chairman of the board. Mr. Warne represented Defiance Bleachery for over 30 years, Lanett Bleachery for 21 years, and Southern Bleachery and Piedmont Print Works since inception in 1923. Mr. Warne is succeeded by **Robert Wheelock** formerly vice-president and **George Lanier, Jr.,** succeeds Mr. Wheelock.

Albert F. Howe and **Charles W. Brown, Jr.,** the surviving partners, have liquidated the Boston wool firm of Brown & Howe as of Dec. 31, and are now devoting their time to the Wuskanut Mills, Farnumsville, Mass., and the Roxbury Carpet Mill, Saxonville. The antecedent wool firm was Brown & Adams (founded in 1892) which was for many years one of the market leaders.

William B. Bachof, associated with Spool Cotton Co., New York, for the last 40 years and vice-president since 1930, was recently elected president. **Herbert Grandage** was appointed general manager of the company.

Harold T. Cheney, Frank Plock and **Arthur Hennigan,** the partners, are liquidating the business of Borneman & Co., New York, as of Dec. 31. The firm has a long history in the wool goods commission business, as it is in line of succession from the old firm of Cox & Schreiber.

B. B. Gossett, president of the Chadwick-Hoskins Mills and the Gossett chain located in South Carolina, was principal speaker at the 12th annual Jacobs-Interference-Trophy Banquet at Clinton, S. C. last month. He spoke before 300 football coaches, officials, fans, educators, and business men, on the good sportsmanship of business. At this banquet **Wm. P. Jacobs,** executive vice-president of the Cot-

Gorham, Ridgewood, third; Andrew G. Scarborough, New York, second; Harry V. Fleming, New York, fifth; and J. Spencer Love, of Greensboro, president of the company who with Mr. Klopman's assistance is making the presentation. Golf and other entertainment features were part of a general business meeting of 46 Burlington executives.

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succeeds in the

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Consider the men you know who are outstandingly successful in the textile field. You'll realize they have one characteristic in common . . .

SOUND, ESSENTIAL TRAINING!

In any field, the untrained man is doomed to eternal failure. The odds against him are too great. It is realization of this fact that impels ambitious men to enroll with the International Correspondence Schools—and get the TRAINING they need.

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☐ Cotton Manufacturing ☐ Chemistry
☐ Woolen Manufacturing ☐ Business Management

TECHNICAL AND INDUSTRIAL SUBJECTS

☐ Air Conditioning and Cooling	☐ Diesel Engineering	☐ Radio ☐ Refrigeration
☐ Architectural Drafting	☐ Electrical Engineering	☐ Sanitary Engineering
☐ Architecture	☐ Electric Lighting	☐ Sheet Metal Work
☐ Auto Elec. Technician	☐ Fire Bosses	☐ Steam Elec. Eng'ring
☐ Auto Technician	☐ Foremanship	☐ Steam Engineering
☐ Aviation Engineering	☐ Heating	☐ Steam Fitting
☐ Boilermaking	☐ Heat Treatment of Metals	☐ Structural Drafting
☐ Bridge Engineering	☐ Highway Engineering	☐ Structural Engineering
☐ Building Estimating	☐ House Planning	☐ Surveying & Mapping
☐ Chemistry	☐ Machinist	☐ Telegraph Engineering
☐ Civil Engineering	☐ Mechanical Drafting	☐ Telephone Work
☐ Coal Mining	☐ Mechanical Eng'ring	☐ Toolmaking
☐ Contracting and Building	☐ Patternmaking	☐ Ventilation
☐ Cotton Manufacturing	☐ Plumbing	☐ Welding, Electric and Gas
	☐ Public Works Eng'ring	☐ Woolen Manufacturing

BUSINESS SUBJECTS

☐ Accounting	☐ Civil Service	☐ High School Subjects
☐ Advertising	☐ College Preparatory	☐ Managing Men at Work
☐ Bookkeeping	☐ Cost Accounting	☐ Salesmanship
☐ Business Correspondence	☐ C. P. Accounting	☐ Spanish
☐ Business Management	☐ First Yr. Col. Subjects	☐ Secretarial Work
	☐ French	☐ Steneg. and Typing
		☐ Traffic Management

Name.....*Age*.....

Address.....

City.....*State*.....

Present Position.....

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Unless your dyeing and finishing departments have the advantages of clear, iron free 100% soft water the quality of your products and their acceptance in the market are left to chance . . . Maybe they will come through as ordered or planned — maybe not. But the principal causes of spoilage and inequalities in finish — *hard or impure water* — can quickly and economically be romoved with a

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To determine whether or not your water supply is causing you trouble and expense we will make an impartial survey without fee or obligation. If a purification plant is indicated our estimate of your requirements will be included in the survey. No "sales pressure" is included in H. & T. engineering service. Write us today.

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WATER PURIFICATION PLANTS DESIGNED
INSTALLED *and* GUARANTEED
CLAYTON, NEW JERSEY

R. G. Emery, who has been elected vice-president of Victor-Monaghan Co., Greenville, S. C., as reported in our last issue. Mr. Emery has been vice-president and general manager of Dunean Mills. It is understood that he will be in charge of Victor-Monaghan under R. E. Henry, the newly-elected president.

ton Manufacturers Association of South Carolina presented the annual football trophy.

George M. Wright, president of Republic Cotton Mills, Great Falls, S. C., has been elected to the directorate of the Textile Hall Corp., Greenville, S. C., to succeed the late T. M. Marchant. The directors adopted a resolution on the passing of Mr. Marchant.

Francis Robert Masters has become associated with Joshua L. Baily & Co., New York, to merchandise the product of Dallas (Tex.) Cotton Mills. Mr. Masters had been with Bliss Fabyan & Co. since 1930, lately in charge Dallas Cotton Mills account.

J. M. Catheart, Jr., assistant superintendent of Chiquola Mfg. Co., has succeeded **John Fulp** as purchasing agent of Abney Cotton Mills, Greenwood, S. C.

Walter T. Jenkins, manager, Rock Hill (S.C.) Printing & Finishing Co., since its inception has been elected vice-president of that company.

L. B. Jackson, vice-president of Palmer Bros., who has been in charge of sales at that firm's New York office for many years, has moved with his organization under the roof of the Iselin-Jefferson Co., New York, which became exclusive selling agents for the Palmer Co. on Jan. 1.

John W. Cussen has been elected trustee for the Taber Mill Corp., New Bedford, Mass., which is in reorganization proceedings.

MORE MISSING MEN!

The following names are those of men who, although recorded members of Phi Psi Fraternity, can not be reached by mail at their last known address, according to Theodore H. Thomas, Grand Council secretary, 215 Washington Ave., Bennington, Vt. When TEXTILE WORLD, about three years ago, published a similar list in cooperation with the fraternity, a large number of the men were located soon after our issue appeared, Mr. Thomas has stated. It is hoped that the below-listed men themselves or any friend who knows of their location will notify the fraternity's secretary directly of their present addresses. The fraternity is planning soon to issue a directory of its membership and it is desired to have addresses correct.

These are the missing men: Edgar H. Jewett, Jr.; Webster de S. Smith; Edward T. Bischoff; Charles J. Moran; Maurice M. Matthews; Claude Merwin LeBel; Paul A. Vaneman, Jr.; Charles Edwin Van Riper; Frank Kallish; Donald T. Duncan; Kenneth A. Casavant; Stanley C. Bouchard; Thomas H. Hillsley, Jr.; Ernest F. McNeil; John Roger Longbotton; Joseph A. Webster; Walter W. Powers; Herman Gross; John Starr Neely; Alexander Otis; James H. Groves, Jr.; Hon. E. S. Graves; Walter J. Johnson; John H. Harrington.

Also missing are: Joseph James Crowley; W. Kenneth McManus; Victor Crossley Holdroyd; Paul L. Anthony; John J. O'Donnell, Jr.; George H. Hotte; John Byron Reed; John W. Bordner; John H. Greer; Leon W. McCann; John A. Farrenkopf; Bob Chandlee; Paul John Muller; Joseph L. Baker; John Darrell Branton, Jr.; Louis Douglas deLoach; T. W. Bridges; E. Arispe; Edgar Earle Johnson; Pelham Eugene Smith; Ferdinand W. Fritsche; Charles Frederick Shaefer; Kendall Onstott; James Ray; Ralph W. Douglas; James Davis Orr; Torry Marco Tyner; T. J. McGown; Milton J. Bentley; J. H. Haddock; E. G. Jones; J. B. Tucker; James Campbell Kelso; Lewis B. Thomas; Edmund Thorne Stewart; John Fulmer; Everett A. Briggs; Julian T. Kelley.

This group gathered at the Wellington, Sears Co. offices in New York, Dec. 7, to witness presentation of the medal of the National Association of Cotton Manufacturers to Miss Opal Hill, of Post, Tex. Miss Hill is a graduate of Texas Tech, of Lubbock, Tex., with degree of Bachelor of Science in Textile Engineering. From left to right are: Norman E. Horn, Harry L. Bailey, Miss Hill, Russell T. Fisher, and Charles A. Sweet. Mr. Fisher is president of N.A.C.M.; the others are Wellington Sears executives. The medal is for excellence in scholarship.

Garner H. Tullis was on Dec. 5 re-elected president of the New Orleans (La.) Cotton Exchange for his third term. **John H. Stewart** was elected as vice-president; **C. C. Hightower,** treasurer.

William E. McBratney, of Robert McBratney & Co., New York, president of the Linen Trade Association, was toastmaster at the annual Christmas party of that association held in New York last month.

Raymond H. Chase has become agent and assistant treasurer of Spencer Mills, Spindale, N. C.

Harry Nelson has been appointed editor-in-chief of the *Analysis,* annual publication of Philadelphia (Pa.) Textile School. Other members of the staff are: **Mort Stafford** and **Harold Zayotti,** associate editors; **Gil Bassin,** business manager; **Al Rosenberg,** advertising manager; **Henry Rotters,** photograph editor; and **Fred Winters,** sports editor.

George S. Harris, executive vice-president of Springs Cotton Mills, who has had his offices in Lancaster, S. C., has removed them to the Pryor Building at Chester, S. C.

Charles M. Knapp and **A. J. Trnka** have joined the sales force of M. J. Whittall Associates, Worcester, Mass.

William J. O'Shaughnessy, formerly with the National Piece Dye Works and more recently with Stonecutter Mfg. Co., has joined the rayon division of Deering, Milliken & Co., New York.

Royden M. Swift of Livezey Linoleum Floors, Inc., Philadelphia, was elected president of the Philadelphia Carpet & Upholstery Club last month. He succeeds **W. W. Viebhan,** of Congoleum-Nairn, Inc.

T. M. Forbes, secretary of the Georgia Cotton Manufacturers Association, has been named a member of the merit and appeals board of the Georgia State Department of Labor. Continuing of course his duties with the association, Mr. Forbes with this appointment becomes the employer representative on the appeals board.

A. T. Roberts, formerly in charge of industrial development for the city of Columbus, Ga., and more recently engaged in promotion work for the Chattanooga (Tenn.) Junior Chamber of Commerce, has been placed in charge of the advertising, publicity and sales promotion work of the Chattanooga Electric Power Board. His duties will also include industrial development work.

John L. Kaiser, of Riverside & Dan River Cotton Mills, New York, was elected president of the Textile Credit Associates at the annual meeting held last month. **Joseph D. Carlin,** of Cohn-Hall-Marx Co., was elected vice-president, **William Collins,** of Nashua Mfg. Co., treasurer, and **James Curran,** of William Iselin & Co., secretary.

John C. Herman has been elected secretary-treasurer and general manager of Moorhead Knitting Co., Harrisburg, Pa., succeeding **G. H. Strick,** who has gone to the Nolde & Horst Co. plant at McMinnville, Tenn.

David H. Colville, manager of Chicago Office of Roxbury Carpet Co., was elected

Caustic Soda

FOR YOUR EXACTING NEEDS

CAUSTIC SODA of high purity and uniform quality is made by Pennsylvania Salt Manufacturing Company to meet the most rigid requirements of mercerizing and other textile processes.

A double purification process makes it low in salt content, low in carbonates, and extremely low in iron.

This pure caustic soda is supplied in aqueous solution in 8000-gallon tank cars, as well as in solid, flake, or ground form in drums. Our technical staff will gladly help with all problems of pumping, piping, and dissolving.

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Hydrogen Peroxide	Sodium Hypochlorite
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Chemicals

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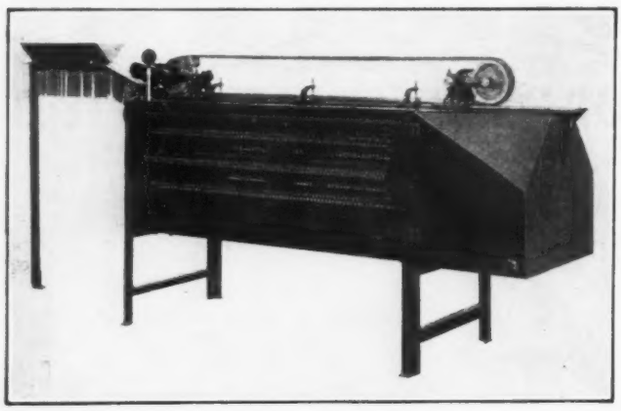
MODEL L

Air Cleaning Quill Stripper



GET THE FACTS

1. The Model L air cleaning machine was especially designed for Rayon and Silk mills, and eliminates any mechanical contact with the quill that might cause damage to the finish.

2. A wide variety of bobbin designs can be cleaned on the same machine with only minor, if any, adjustments.

3. The New Type L will clean as high as 140 quills per minute, depending upon the skill of the operator and the condition and type of quills.

The facts listed here are only a few of the many money saving advantages—for complete information

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CHARLOTTE, N. C.

Luther Pilling, Danielson, Conn.....N. E. & Canada
E. W. S. Jasper, Inc., Elizabeth, N. J.....Penn. & N.J.
Geo. Thomas & Co., Manchester, Eng.....European Agt.

chairman of the Merchandise Mart Floor Covering Group at its annual meeting recently.

Frank Hillery has been appointed vice-president in charge of exports for Wellington Sears Co., New York. At the same time, that company relinquishes its interest in the Manufacturers Textile Export Co. which it owned jointly with Pepperell Mfg. Co. Mr. Hillery has also resigned as president of that export company. He is president of the Textile Export Association of the U. S. and has been associated directly or indirectly with Wellington Sears for over 30 years.

Roy E. Bradley has been succeeded by **H. B. Summerell** in charge of the Greensboro, N. C., office of North American Rayon Corp. Mr. Bradley resigned to return to his brokerage business in Chattanooga.

Joseph Houth has been appointed general manager of Clearwater (S.C.) Mfg. Co., succeeding the late Murray Bulford.

Edmon G. Luke, for ten years with Bruns-Nordeman Co., New York, and more recently a member of the fine goods department of Bliss Fabyan & Co., will become associated with the Grosvenor-Dale Sales Corp. on Jan. 18, as assistant to **Henry Bibbo,** manager.

William F. Weber, who has been associated with American Viscose Corp., New York, since its inception, resigned as of Dec. 31. Mr. Weber started with **S. A. Salvage** in the rayon and cotton yarn business as a boy in 1910.

C. Judd Neal has been made manager of the gray goods division of Joshua L. Baily Co., New York. Recently he headed the fine goods department of Bliss Fabyan Co.

Gustave Lewinson, associated for many years with Scheuer & Co., New York, is now with the cloth brokerage firm of Gansberg & Co., New York.

Stephen Wise is now in charge of the New York office of Sunbury (Pa.) Dye & Print Works.

Arthur P. Muelberger is now connected with the New York sales office of Cabot Mfg. Co. as assistant to the sales manager, **George R. Bryan.**

Ralph B. Shaw, associated for the last twelve years with Stillwater Sales Corp., New York, has resigned.

Daniel B. Hayward, since 1928 with Bliss Fabyan & Co. and in charge of that firm's Boston office for a number of years, is to retire from active business early this year.

Carl C. Mattmann, Jr. of A. M. Tenney Associates, New York, has been nominated for president of the American Association of Textile Technologists. **Rudolph Semler** of Duplan Silk Corp. for vice-president; **John Hagan** of Callaway Mills, for second vice-president; **Bernice S. Bronner** of Good Housekeeping Institute, for secretary; **George Urlaub** of Throwsters Institute, for treasurer.

R. L. Forney, assistant to the managing director of the National Safety Council, Chicago, has been appointed director of the Council's industrial division, succeeding **W. Dean Keefer,** who has concluded 21 years service with the council to join an insurance company.

J. L. Rogers, who is the dean of textile representatives in St. Louis, retired on Jan. 1, after having spent 68 years in the dry goods trade. He was 82 years old on Jan. 4. For the last 25 years he has been on the staff of Woodward, Baldwin & Co., acting as their representative in the Southwest during most of that period. He will be succeeded in St. Louis office of Woodward Baldwin by **R. L. Howe.**

John F. Greene has been promoted to the post of assistant manager of the New England Industries, Inc., Lewiston, Maine. He has been agent at the Hill Mill for the last five years, and he is succeeded there by **George F. Spofford, Jr.**

E. B. Blatchley has become associated with the drapery sales division of Pacific Mills, New York. He was recently with Pepperell Mfg. Co.

Frank W. Jeffers has resigned from Joshua L. Baily & Co. to become associated with Howard E. Bishop, newly appointed selling agent for the four Maine mills of New England Industries, Inc., in New York. Mr. Jeffers was at one time a vice-president of Southeastern Cottons, Inc.

H. W. Bohnke, assistant secretary of Textile Banking Co., New York, has been placed in charge of sales promotion under the title of assistant secretary in charge of sales.

C. C. Roberts, superintendent No. 4 Mill, Pelzer (S.C.)

Mfg. Co., has resigned and is succeeded by **M. M. Taylor,** formerly superintendent of Nos. 1, 2 and 3 Mills. **Herman Taylor,** formerly overseer of spinning in Nos. 1, 2 and 3 Mills, is now superintendent.

Joseph Scanlan has been appointed supervisor of finishing for the Holyoke (Mass.) Worsted Co.

Andrew A. Manning, Spartanburg, S. C., has been elected a director of Union (S.C.) Buffalo Mills Co.

J. W. Brown has resigned as superintendent of spinning at Roanoke Mills, No. 2, Roanoke Rapids, N. C., to accept a similar position with Henderson (N. C.) Cotton Mills.

Jack Pirkle, of Stonewall, Miss., has been made superintendent of Faytex Mills, Fayetteville, N. C.

Charles E. Gravely, formerly associated with the Spartanburg (S.C.) unit of Draper Corp., has joined the Bemis Bag Co., Talladega, Ala., as textile engineer.

George Hugeley, formerly assistant superintendent of Scottdale (Ga.) Mills, is now night superintendent at Bonham (Texas) Cotton Mills.

F. L. Lee is now on the staff of the designing department at Eagle & Phenix Mills, Columbus, Ga.

C. M. Hemphill, formerly superintendent of the Greer unit of Victor-Monaghan Co., has resigned due to ill health after serving as superintendent with that company for more than 20 years. He is succeeded by **D. C. Turrentine, Jr.**

Rene Bouvet, formerly fabric technician with Colonial Mills, New York, is now with American Viscose Corp., at its Marcus Hook, Pa. plant.

Richard Knight, Fall River, Mass., has been appointed assistant superintendent of Ponemah Mills, Taftville, Conn.

Ernest M. Boys, superintendent of Pisgah Cotton Mills, Brevard, N. C., has resigned to accept a similar position with the recently reorganized Kinston (N. C.) Mills.

William T. Tobin has been appointed overseer of dyeing at Webster (Mass.) Mill.

William D. Silcox, superintendent of the Lewistown, Pa., plant of American Viscose Corp., was master of ceremonies at a dinner given last month to four former officials of the Lewistown plant who had been transferred to the new Front Royal, Va., plant. The four include **Gerald Tompkins,** superintendent at Front Royal; **Christopher W. Buehl,** general foreman of spinning; **Thomas Brastow,** chief chemist, and **George Lux,** general foreman of viscose department.

A. W. Kerstetter has been promoted to superintendent of Susquehanna Silk Mills plant at Sunbury, Pa., taking place of **R. Pluemacher** who becomes the firm's technical advisor.

W. L. Davis, for many years with the Proximity Mfg. Co., Greensboro, on Dec. 5, was appointed superintendent of Edna Mills Corp., Reidsville, N. C., succeeding **E. P. Cofield,** who recently resigned to go with Erlanger Cotton Mills Co., Lexington, N. C.

G. H. Lokey, with Winnsboro (S.C.) Mills for 23 years, and for the last 17 superintendent, retired from active service Jan. 1, but will continue with the mills in an advisory capacity. **M. A. Kirkland,** who was transferred to the Stark Mills, at Hogansville, Ga., in 1932, will be transferred back to Winnsboro to succeed Mr. Lokey. **S. H. Sherman** will also be transferred to the Stark plant to take charge of process development in the tire cord division, and **Leonard Swearengen** will be in charge of development and control work at Winnsboro.

J. L. O. Foster is now overseer of weaving at Clinton (S. C.) Cotton Mills.

W. A. Roberts has resigned as second hand in the weave room of Gayle plant of Springs Cotton Mills, Chester, S. C.

Frank Madden has been appointed overseer of weaving at Seminole Mills, Clearwater, S. C., having been promoted to this position.

Joe Guess, formerly of Covington, Ga., has become personnel director of Abbeville (S. C.) Mills.

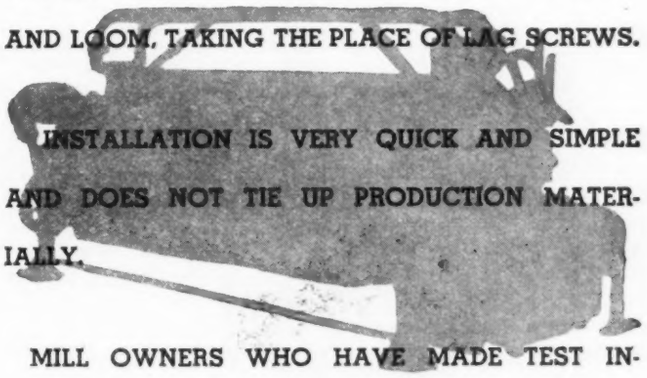
James Baker, formerly second hand in spinning at Seminole Mills, Clearwater, S. C., has accepted a similar position with Orr Cotton Mills, Anderson, S. C.

W. S. Moore, of Lumberton, N. C., has become overseer of carding and spinning at Erlanger Cotton Mill, Lexington, N. C.

J. E. Smith, formerly of Woodruff, S. C., has become superintendent of Laurens, (S. C.) Cotton Mills.

To Weavers—

THE PRACTICE OF TREATING LOOM VIBRATIONS BY ISOLATING THE EQUIPMENT FROM THE MILL BUILDING IS GROWING BY LEAPS AND BOUNDS. IT IS DONE BY PUTTING UNISORB* PADS UNDER THE LOOMSIDE FEET AND THE AUXILIARY SUPPORTING FEET, IF THESE ARE PRESENT. A SPECIAL TYPE OF CEMENT (OIL-PROOF) IS USED TO FASTEN PADS TO FLOOR AND LOOM, TAKING THE PLACE OF LAG SCREWS.



INSTALLATION IS VERY QUICK AND SIMPLE AND DOES NOT TIE UP PRODUCTION MATERIALLY.

MILL OWNERS WHO HAVE MADE TEST INSTALLATIONS ARE PROGRESSIVELY TREATING THE BALANCE OF THEIR LOOMS AS OPPORTUNITY OFFERS.

REPORTS FROM ALL TYPES OF WEAVING PLANTS CONSISTENTLY SHOW WORTHWHILE SAVINGS IN MAINTENANCE COSTS AND PART BREAKAGE.

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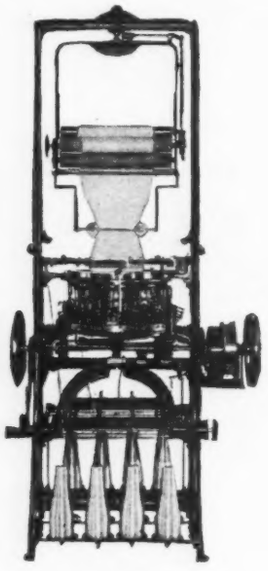
Offices in Principal Cities

REMARKABLE
ELASTICITY
INHERENT
IN FABRIC PRODUCED ON THE
COOPER SPRING-NEEDLE RIB MACHINE



FOR UNDERWEAR, OUTERWEAR AND SWIM SUITS

The famous Cooper Spring-Needle Rib Machine — the only knitting machine of its kind on the market — produces fabric so elastic that the average layman will declare it to be made of rubber or other elastic yarn, but actually this remarkable ability to stretch and snap back is due to the rib construction plus the equally important fact that the Cooper principle of knitting puts no strain on the yarn to reduce its natural elasticity. Also that fabric is unusually uniform, strong, and durable. Another, rib-top machine knits cuffs, collarettes, bottoms, etc.

CHARLES COOPER COMPANY
INCORPORATED
BENNINGTON, VERMONT, U. S. A.

Obituary

Gordon Albert Johnstone, 67, general manager of the Priscilla Mill, a unit of Textiles, Inc., died in Gastonia N. C., Dec. 14. Born in Canada he began his textile career in Dedham, Mass., in 1890. In 1912 he went south as general manager of the Fulton Bag & Cotton Mills at Atlanta. He had since been agent of Winnsboro Mills and of Loray Cotton Mills. He has been with Textiles, Inc., since 1929.

Richard M. Hampton, 74, for last ten years sales representative of Bolger Bros., Philadelphia, died Dec. 27.

Arthur A. Moffitt, sales representative of Howard Bros. Mfg. Co., Worcester, Mass., died Dec. 20. He covered textile mills of New England, New York and New Jersey for last 18 years.

James Atkins, for last five years general manager of Seltzer Silk Mills, Elmira, N. Y., died Jan. 1 in Clifton, N. J. He entered the silk business many years ago in Paterson and had been with Magil, Mallinson, and Duplan.

Francis H. Cabot, 80, who retired 13 years ago from F. H. Cabot & Co., New York, died Dec. 20.

Joseph Fass, chief chemist of Industrial Rayon Corp., died in Buffalo, N. Y., last month.

Dr. Joseph F. X. Harold, 65, an industrial chemist specializing in textile work, died Jan. 2. He was active in textile technical associations, consultant to William Grosvenor Laboratories, New York, and owner of many textile patents.

T. B. Stackhouse, 82, South Carolina industrialist and philanthropist, died Dec. 9. He organized Dillon (S.C.) Cotton Mills in 1900 and was their first president.

Edwin B. Sparks, president of Percy Kent Bag Co., Buffalo, N. Y., died last month at Palm Beach, Fla.

Henry A. Caesar, senior partner in H. A. Caesar & Co., New York, died Dec. 11. He founded the business named after him in 1887, but for the last four years had not been active.

Edward J. Brady, 78, president of the Waucantuck Mills, Uxbridge, Mass., died Dec. 9.

Sir Edwin Forsyth Stockton, 66, chairman of the British Breda Silk, Ltd. and of the Breda Visada, Ltd., died in Chelford, England Dec. 4. He had been prominent for many years in the Lancashire cotton industry.

Clarence U. Forbes, 58 associated for 27 years with Lorraine Mfg. Co., Pawtucket, R. I., died last month.

Waldron B. Borsdorf, 44, treasurer of the Julius Forstmann Corp., New York, died Dec. 16.

Charles N. Crowell, 44, manager of Dundee Woolen Mills, Evansville, Ind., died at Nashville Tenn., recently.

Arthur Rosenthal, 57, president of the Rose Patch & Label Co., Grand Rapids, Mich., died recently.

George P. Newall, 70, chairman of the board of the Livingston Worsted Mills, Holyoke, Mass., died at Washington, R. I. recently. He was agent of Livingston Mills for over 25 years.

John F. G. Miller, 62, vice-president of B. F. Sturtevant Co., Hyde Park, Mass. died Dec. 9.

H. G. Sturges, president and treasurer of Sturges Mfg. Co., Utica, N. Y., died Dec. 7.

Charles A. McGowan, 60, head of McGowan Bros. Silk Mills Beaver Meadow, Pa., died recently.

Theodore Frederick Hussa, textile engineer and consultant, died at his home in Montclair, N. J., Dec. 5.

Joseph Sabul, 55, of the old firm of Cheplan, Sabul & Palmer, Philadelphia, knit goods manufacturers, died Dec. 9.

Mrs. M. P. Gridley, 89, president from 1890 to 1912 of the cotton mill founded by her father, George Hudson, at Batesville, S. C., died at Greenville S. C. Dec. 19.

Frank Ludlam, 66, assistant secretary and assistant treasurer of International Nickel Co., died Dec. 8 at his home in New York.

John Cordon, 79, for many years an overseer at Sulloway Mills, Franklin, N. H., died recently at his home in Hebron, N. H.

Mrs. Ada Huguley Lanier, 83, widow of the late Lafayette Lanier, Sr., pioneer cotton manufacturer of the South who founded and developed the group of mills known as the West Point Mfg. Co., died Dec. 15, in West Point, Ga.

THIS AND THAT

National Bureau of Standards, Washington, D. C., has issued its recommended revision No. CS 46-36 covering hosiery lengths and sizes. Copies have been distributed by L. R. Gilbert, Division of Trade Standards, to interested parties.

Under pressure of a growing shortage of carpet wools, largely imported, there is definite stimulus to development of rug pile made from synthetics.

Boston Wool Trade Association will hold its annual dinner in Boston on Feb. 8, 1940.

Van Raalte Co., which launched a combination Nylon and rayon knit glove early in December, reported on Dec. 8 that the line was sold up and they were taking no further orders. The gloves were 21% Nylon and sold for $1.25 at retail.

Adoption by all interested groups of the color-fastness specifications and tests developed by the National Association of Finishers of Textile Fabrics was advocated last month at a meeting of the technical committee of that association. Representatives of other groups voiced their approval of the tests and of the plan to submit them to the National Bureau of Standards for adoption in place of the tests now included in Standard CS 59-39.

Cannon Mills Co., Kannapolis, N. C., will, on Jan. 18, give a banquet for all employes with the company for 25 years or more. This "Oldest Employes" banquet is an annual event at which service badges are presented to all of the old faithfuls. Dr. Samuel Grafflin, White Plains, N. Y., will be the principal speaker.

Former North Carolina Governor O. Max Gardner claims a 1939 world's record in cotton production for Cleveland County, N. C. On 51,000 acres, he says, 55,454 bales of cotton were ginned up to Nov. 14, giving an average of more than 500 lb. to the Cleveland County acre compared to the national average of 234 lb.

National Cotton Council's annual meeting to be held in New Orleans in February culminates a year's excellent results, according to W. Rhea Blake, Memphis, Tenn., secretary of the Council. Mr. Blake says that 65 out of 88 cotton producing counties in the South have been organized into local units of the National Cotton Council, and that $125,000 was raised during 1939 for organization work and the 1940 financial program is well under way.

Wholesale Dry Goods Institute is holding its annual convention and merchandise exhibition at the Hotel Commodore, New York, Jan. 16 to 18, 1940. "Effective Cooperation for Effective Selling" is the theme. Early in the month 27 manufacturers and selling agents had completed plans for exhibits.

A Southern Power and Engineering Show is scheduled to be held in the Armory Auditorium, Charlotte, N. C., Oct. 8 to 12, 1940. The show, it is reported, will cover power plant and machine shop appliances. There will be no textile machinery or equipment shown.

Gotham's new hosiery line for spring starts at $6.00 (79c retail) made of silk and lisle. All-silk numbers start at $7.25 ($1.00 retail).

British Nylon Spinners, Ltd., capitalized at £300,000 has been registered in England. It is sponsored by Imperial Chemical Industries, Ltd., Courtaulds, Ltd., and Samuel Courtauld is chairman.

Some 50 underwear manufacturers of eastern Pennsylvania attended a group dinner-meeting, under the auspices of the Underwear Institute, at Reading, Pa., Dec. 13. Howard Shimer, of Nazareth Mills, was chairman. Discussions were led by Roy A. Cheney, president of the Institute, and by Francis Simmons, its research director. Discussions centered upon the provisions and probable effects of the wage-hour act.

A new rayon plant at Quillota, near Valparaiso, Chile, to have been equipped with German machinery, is still waiting for that machinery, according to reports from the American Commercial Attache in Santiago. Some 70 tons of rayon machinery, worth about $240,000, was said to be enroute early in the war, but it has not arrived and the new building stands largely empty.

Charter of incorporation has been issued in North Carolina, to the Southern Combed Yarn Spinners Association, Inc. Incorporators of the organization were J. Harold Lineberger, Belmont, N. C.; J. C. Roberts, Gastonia, N. C.; and Mildred G. Barnwell, Gastonia, N. C.

Durene Association of America distributed a large number of attractive boxes of matches, carrying the Durene message, including the slogan "Keep Your Shirt On!" to the underwear buyers in 10,000 retail stores.

Hit or miss methods of selecting soda ash, caustic soda, and other alkalies you require for textile operations have gone out of date.

Today, there are five important requirements to be considered when you place your order for an alkali . . .

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TEXTILE MILL NEWS

Cotton Mill News

Bauer & Black, Division of Kendall Co., Chicago, Ill., has let contract to George A. Nordgren Co. for one-story addition, 24 x 52 ft. Thielbar & Fugard are architects.

Buck Creek Cotton Mills, Siluria, Ala., has been purchased by J. T. Phillips, president of the company. There will be no change in the personnel or in the policies of the mill.

Burton-Dixie Corp, Chicago, Ill., has taken title to tract of vacant land, 241 x 1050 ft., at Archer and Lawndale Aves., for a reported consideration of $74,000, and will use for later expansion.

Caldwell Cotton Mills, Hudson, N. C., have recently installed 3,000 new long-draft spindles and contemplate changing 6,000 additional spindles to long draft. The mill has also installed three inter-draft slubbers.

Cannon Mills, Concord, N. C., plant No. 6, are installing a new powdered-coal boiler, 60,000 lb. pressure, according to J. E. Sirrine & Co., engineers, Greenville, S. C., who gave contract to Combustion Engineering Co., New York. The new boiler is to furnish steam for heating and processing at the Concord Mill, and will alternate with a similar boiler of 45,000 lb.

Cornwall & York Cotton Mills Co., St. John, N. B., a subsidiary of Canadian Cottons, may return to weaving of fabrics if present negotiations emerge successfully. Of late it has produced yarn only for use in other mills of the Canadian Cottons chain.

Courtenay Mfg. Co., Newry, S. C., is installing 36 new spinning frames totaling 12,672 spindles, to replace 72 old frames.

Cowpens (S. C.) Mill has had three appraisers named: D. W. Anderson, T. W. Dashiell, and T. Geddings Roche, to determine the value of the mill. The order was signed in the western district Federal Court. The mill has been declared insolvent and adjudged a bankrupt and administration has been referred to C. E. Daniel, referee in bankruptcy, with Stanley Converse to continue as trustee.

Dallas Mfg. Co., Huntsville, Ala., has completed its extensive modernization program, including installation of 56 Saco-Lowell long-draft spinning frames, equipped with individual motor drive, and has undertaken a new electrification program for the entire plant.

Egan Cotton Mills, Atlanta, Ga., have begun erection of one-story addition, 40 x 100 ft., to mill at College Park, near Atlanta, for which general contract recently was let to Straiton-Hard Co. Cost over $30,000, with equipment.

Georgia - Kincaid Mills, Griffin, Ga., has new dye house near completion, according to J. E. Sirrine & Co., engineers, Greenville, S. C. Power and lighting work is being done by J. M. Clayton Co. of Atlanta, Ga. Sirrine has awarded the piping contract for new de-aerating feed water heater at Georgia-Kincaid Mill to Crawford & Slaten Co., Atlanta, Ga.

Goodyear Tire & Rubber Co., Gadsden, Ala., has begun construction of a new building to cost approximately $150,000. Company's plant at Decatur, Ala., is installing 60 additional

Pacific Mills Modernizes Columbia Plants

One of the largest modernization programs of recent years was scheduled to begin this month at Pacific Mills, Columbia, S. C. It is estimated unofficially that between $1,250,000 and $2,500,000 will be expended on the work which will require six to eight months to complete. The program includes primarily installation of new preparatory equipment or revamping that in use at the Olympia and Granby plants, it is reported that Saco-Lowell Shops is supplying the company with new opening equipment, improved picker arrangement, new five-roll drawing, new roving and at least 90,000 new ball-bearing spindles designed to utilize paper bobbins. The work is being carried out in such a manner as not to disrupt operation of the mill any more than necessary. Displaced workers will be found jobs in other parts of the mill or on other shifts, according to the management.

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The BARBER-COLMAN System of Spooling and Warping
The Suction Tube catches and holds the slack yarn, letting it out as the cheese goes over onto the winding drum. Positive mechanical yarn handling assures uniform high quality of product.
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It's a no-stop run when your frames start up with Pawtucket Rings. The low number of ends down . . . and longer traveler life . . . reduce both operating and maintenance costs. Pawtucket Rings give your travelers a "turn for the better."
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A Happy New Year Ahead
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SHAMROCK BASKETS & TRUCKS
Out with the old . . . In with the new. Old and worn-out equipment will have no place in the happy New Year ahead.
Certainly, a wise New Year's resolution is to investigate the Shamrock line.
Shamrock Canvas Baskets, Hampers and Trucks are built better, they'll last longer. Your jobber is ready to supply you.
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cards, one picker, and other equipment to balance their carding with the spinning equipment.

Graniteville (S. C.) **Mfg. Co.** has begun work on an addition to cost $100,000.

Hathaway Mfg. Co., New Bedford, Mass., have awarded contract to George P. Williams, South Dartmouth, Mass., for an addition to building No. 3.

Henry River (N. C.) **Mills Co.** is completing two-story addition, 30 x 150 ft., and will soon begin installation of equipment, consisting of 12 cards, 8 combs, 6 feeders and accessories.

Johnson & Johnson, New Brunswick, N. J., have awarded general contract to White Construction Co., New York, for one-story mill, 300 x 600 ft., with several smaller units, on large tract of land recently acquired in North Brunswick Township, near city. Cost about $750,000, with equipment.

Jewel Cotton Mills, Thomasville, N. C., have installed six new Saco-Lowell combers which replace 18 of the type previously used.

Kenneth Cotton Mills, Walhalla, S. C., plans two-story addition, 30 x 75 ft. Cost estimated over $45,000, with equipment. Charles W. Fant, Anderson, S. C., is architect.

Morowebb Cotton Mills, Dallas, N. C., have under way an improvement program which includes painting all buildings and a new electrification plan.

Nashua (N. H.) **Mfg. Co.** reports net loss of $6,365 for the fiscal year ended Nov. 4, 1939, compared with net loss of $242,814 in previous fiscal year. Sales for the recent period total $11,319,763, a rise of 35% compared with year before.

Nelson Cotton Mills, Lenoir, N. C., are modernizing, installing 12 new Whitin twister frames and 20 new long-draft spinning frames, 2 one-process interdraft slubbers, 4 roving frames, and one single-process picker.

Nyanza Mills, Woonsocket, R. I., have been taken over by Joseph and Albert A. List of Fall River, Mass., for resale.

Profile Cotton Mills, Jacksonville, Fla., plan improvements in mill, including equipment reconditioning and replacements. Plant is resuming production following a shutdown.

Puritan Cordage Mills, Inc., Louisville, Ky., have started construction of one-story addition to cost about $30,000.

Revolution Cotton Mills, Greensboro, N. C., will include new equipment in opening and picking departments in its modernization program.

Sand Springs (Okla.) **Textile Mills, Inc.,** are to be expanded by Commander Mills, Inc., to whom they are under lease, with $500,000 worth of new construction and equipment scheduled. New looms will be installed.

Sapona Cotton Mill, Inc., Cedar Falls, N. C., recently purchased by Sellers Mfg. Co., Saxapahaw, N. C., is having twisting machinery installed for manufacture of 2-ply cotton yarn.

Scranton (Pa.) **Lace Co. has** begun erection of four-story addition, for which general contract was let to Sordoni Construction Co., Forty Fort, Pa. Cost over $65,000, with equipment. L. V. Lacy, Forty Fort, is architect.

Slater Mfg. Co., Spartanburg, S. C., will install 128 new looms as part of an expansion program.

Soule Mill, New Bedford, Mass., has been sold to the Nash Reclaiming Co. The weave shed has been sold to John J. Duane to be razed.

Tifton (Ga.) **Cotton Mills** have just completed an addition which will house the warper room and warehouse. The mill has also installed 560 new H & B twister spindles, 11 new cards, 4 automatic Abbott winders, and 3 drawing frames.

Union-Buffalo Mills, Union, S. C., and subsidiary companies of Greenville, S. C., report for the year ending Sept. 30, 1939, a net loss of $306,524, compared to a net loss of $212,246 the preceding year.

Union Cotton Mills, Maiden, N. C., have installed eight new spinning frames and two cards in an addition constructed for this purpose.

Virginia Mills, Swepsonville, N. C., has installed a Philadelphia Drying Machinery Co. automatic rotary feed rawstock dryer, and a new Fletcher high speed rawstock extractor. Equipment was sold by F. W. Warrington Co. of Charlotte.

Wampum Spinning Mills, Lincolnton, N. C., idle for several years, is being equipped to resume operations. The mill will manufacture thread yarns and will operate a dye plant

Finish—

So Important to Appearance and Quality

Proctor Automatic Boarding Machines have long been noted for the unvaryingly excellent finish they impart to hosiery . . . whether light, medium or heavy weight, seamless or full fashioned, for women or men. This fine finish is the result of uniform *external* drying by fan-circulated warm air, and may be enhanced by the addition of the Proctor Auxiliary Conditioner. This Conditioner automatically moistens the entire stocking after it is on the board, before it enters the drying chamber . . . eliminating all dry spots. And, too, it permits boarding the stocking with less moisture in it . . . reducing the possibility of damage.

As to quality production on the Proctor Machines . . . it may be as high as the manufacturer demands, limited only by the mechanical speed of 32 dozen pairs per hour on the 2-operator machine for women's hosiery, and 52 dozen pairs per hour on the 2-operator machine for men's half hose. This, in less than 9½ x 11½ feet of floor space for either machine!

Every consideration has also been given to the ease and comfort of the "boarder" in the design of these machines . . . no tiring, back-breaking, arm-straining movements while boarding are necessary.

The price of these machines is such that the buyer is assured a substantial return on his investment.

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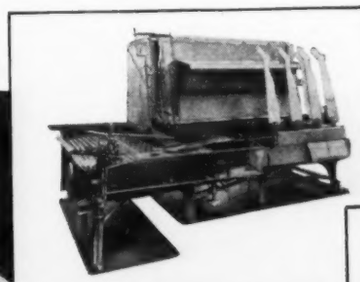
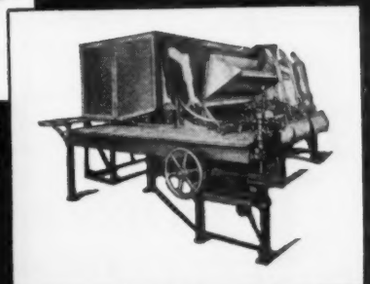


Automatic Machine for Women's Hosiery



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NUMBERING
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MARKING TEXTILE MILL TAGS, TICKETS, LABELS, ETC.

Modern textile merchandising demands CLEAR, EASILY READ piece, lot and case numbers, size and yardage lengths, etc. Supply this demand and use the new American Speed Set Gear Construction Numbering Machines. Such numbering with Speed Set machines can be done quickly and easily. Numbers change instantly with touch of fingers and ANY COMBINATION OF NUMBERS can be quickly obtained. All steel wheels, deeply engraved figures, self-inking.

Eliminate errors and see that your tags, tickets, labels, etc., are attractively and legibly numbered the SPEED SET way. WRITE TODAY FOR FOLDER describing these new machines used in Cotton, Woolen, Hosiery, Knit Goods, and Dyeing and Finishing Plants.

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and winding room. The name of the new corporation, which will operate the plant, has not been announced.

West Point (Ga.) Mfg. Co. has inaugurated a building and improvement program at its Riverview, Fairfax, Langdale, and Lanett plants, all of which are located in Alabama. At Riverview a new motion-picture theatre is under construction. At the Lanett Bleachery & Dye Works a coagulating basin for filter plant and a three-story addition to the cloth room is being built. Addition to the cloth room at the Fairfax is under construction, as well as a new storage warehouse at the Langdale unit.

Wiscassett Mills Co., Albemarle, N. C., plans five-story addition, 50 x 330 ft., larger part of structure to be used for warehouse. Cost estimated about $100,000, with equipment. An air-conditioning system will be installed in portion of building. Company has purchased package dryer from Philadelphia (Pa.) Drying Machinery Co.; two high-speed extractors have been bought from Fletcher Works, Philadelphia.

Yadkin Cotton Mills, Inc., Patterson, N. C., recently formed with capital of $100,000, are taking over local property and will soon begin operations. G. L. and R. O. Whisnant, both of Maiden, N. C., are heads.

Wool Mill News

Bigelow-Sanford Carpet Co., Thompsonville, Conn., has installed the largest tapestry loom in the world, a 60-ton machine that weaves carpeting 18 ft. wide. It is driven by two motors.

Caryville Mills, Bellingham, Mass., recently purchased by Frank G. W. McKittrick, treasurer, F. W. McKittrick Co., Lowell, Mass., dealer in textile machinery, for a stated consideration of $69,000, will be held intact and placed on market for resale. The plant comprises 15 buildings and has been idle about nine months.

J. M. Christian, graduate of the textile engineering department of Texas Technological College, Lubbock, Texas, has announced that he will begin immediate construction of a plant for carding, spinning and weaving of wool at Eldorado, Texas, to be known as the West Texas Woolen Mills.

Clearbrook Woolen Co., Winchester, Va., has installed 16 looms on fabrics for women's sportwear. The company was recently organized with capital of $50,000. The plant was formerly run by Brucetown Woolen Co.

Arthur E. Dunn, of Whitman, Mass., and Greenfield, N. H., has leased the Wolf factory in Milford, N. H. and will soon start the manufacture of narrow Axminster rugs and carpets. The plant has been idle for many years. About 15 men will be employed and yarn will be supplied by a Hillsboro mill.

Imperial Woolen Co., Manayunk, Philadelphia, carpet yarn spinner, has made an assignment for benefit of creditors to A. Wallace Schofield.

Parker-Wylie Division of General Carpet Corp., Philadelphia, Pa.—Property of this company, including real estate, machinery and equipment, has been sold at public auction, with equipment sales totaling $185,0000 to a number of buyers, and real estate bringing about $65,000.

Princeton Worsted Mills, Trenton, N. J., have purchased adjoining property, 340 x 400 ft., which for the present will be used as parking space for employees' cars. Company is building addition on land previously owned.

Texas Scouring & Wool Mfg. Corp., Marble Falls, Tex., is considering new one-story branch mill at New Braunfels, Tex., to cost close to $50,000, including equipment.

Texas Woolen Mills, Eldorado, Tex., recently organized, have begun erection of one-story mill for blanket manufacture, with installation of carding, spinning, and weaving departments. Operations are scheduled to begin early in 1940.

Rayon Mill News

American Enka Corp., Enka, N. C., has let contract to Potter & Shackelford, Greenville, S. C., for one-story addition for expansion in laboratory facilities.

American Velvet Co., Stonington, Conn., has been chartered with capital of $10,000, to take over and operate local company of same name. Operations were recently resumed. Clarence A. and J. D. Wimpfheimer, Stonington, are president and treasurer, and vice-president, respectively. B. A. Feldman is secretary.

American Viscose Corp., Marcus Hook, Pa., plans modernization and improvements at local mill, including installation of equipment in sev-

GOOD BUSINESS NEWS

TO put reverse English on the old proverb, "one man's meat can be nourishing diet for the other fellow, too."

The Brown Corporation* was a regular user of our service. It gave their company money-power far in excess of what its regular connections had provided.

Brown had been selling considerable merchandise to Black & Company,* getting cash advances on shipment from us and clearing them off the slate as Black's checks came in.

But gradually, Black began taking longer time to pay.

Since he had long been a good customer of Brown's, we frequently permitted an extension of time, but advised a frank talk to see where things were heading.

They quickly found the reason. His regular bank credit wasn't enough to finance the volume of sales Black needed. His working capital was continually frozen in receivables. First he had to pass up discounts on his payables. Next, he was passing due dates.

Brown explained our service . . told how it was helping him. He urged Black to consult us. We were called in. We negotiated an arrangement, effective immediately . . without red tape or delay.

Then Black's business curve started up again. In little more than a year, Dun had improved his credit rating to A1. By the end of 1938, his net worth was nearly $200,000 greater, a healthy increase of nearly 30%.

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Which would be better for your business—a borrowing capacity set by routine consideration of your capital investment and an audit of your present condition? Or, a flexible financing system that looks ahead and provides liquid cash for financing new sales as fast as you can make them? Write "Dept. TM" for our free booklet "CAPITAL AT WORK".

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CAPITAL AND SURPLUS MORE THAN $65,000,000

Better Satisfied WORKERS

Reports from leading textile mills indicate that Do/More Seating has contributed to better satisfaction among their employees. Added to this, many state that increased production is another result.

Do/More factory chairs come in a variety of models scientifically designed to better adapt the individual to his particular work. Details are available regarding these and other Do/More advantages.

Send for your copy of booklet, *"PROPER SEATING—An Aid to Industrial Efficiency," by J. R. Garner, M.D.*

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You are invited to try Do/More Chairs in your own plant. Ample time will be given to judge the benefits without obligation to buy. Write today and we will see that proper models are promptly shipped for such a test.

One of several different types of factory chairs.

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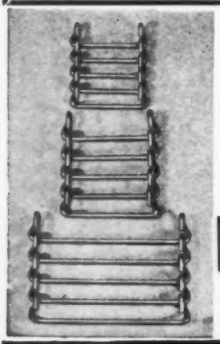

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The ideal tool for cleaning out slots in sinker and divider heads. Made in all gauges. Each one comes in a leather carrying case.

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ESS BREAKAGE
ONGER SERVICE
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ONGER UNIFORMITY OF PRODUCT

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1119 East 23rd Street Indianapolis, Indiana

eral production units. Cost estimated about $200,000. Work will be carried out during first half of 1940. The company has bought additional land adjoining its new plant at Front Royal, Va., which is being prepared for operation.

Burlington (N. C.) Mills, Inc., has completed arrangements for purchase of Mid-State Cloth Mills, Newton, N. C. It is expected that a statement as to operation policy will soon be released. Burlington Mills have let contract to George W. Kane, Inc., Greensboro, N. C., for one-story addition, 100 x 300 ft. for warehouse unit; also for garage structure, 50 x 66 ft. Cost estimated over $50,000, with equipment.

Cleveland Cloth Mills, Shelby, N. C., have completed an addition which cost $30,000 to house the cloth inspection department.

E. I. du Pont de Nemours & Co., Rayon Division, Amptihill, Va., has approved plans for expansion and improvements in local mill, including new production units and modernization of present equipment. Cost estimated close to $1,000,000. The Du Pont Company is credited around Louisville, Ky., as being the principal in a series of operations involving purchase of options on acreage northeast of Jeffersonville, Ind., just across the Ohio River from Louisville. Local gossip has it that a second Nylon plant may be erected.

L. Hyman & Co., tie fabrics and Contralastic cloth, have moved to new and larger quarters at 16 East 34th St., New York.

Jaunty Silk Co., Scranton, Pa., has plans for construction of a 1-story addition to its weaving plant in the Green Ridge section, estimated to cost $40,000 or more with machinery and equipment.

Jessup Mills, Paterson, N. J, have been bought by Simon H. Glass, attorney, for $13,500. It is understood that the machinery belongs to William Jessup and that it will be removed.

Joy Silk Mills, Hartsville, S. C., has installed additional equipment from Fletcher Works, represented in their territory by F. W. Warrington Co. of Charlotte.

La France Industries, Philadelphia, and their subsidiary, **Pendleton Mfg. Co.,** La France, S. C., have had their reorganization plan approved by the Federal Court. Final hearing is on Jan. 29.

Minnewawa Mfg. Co., Marlboro, N. H., has taken over an industrial building at 3304 North Broadway, Knoxville, Tenn., and will install equipment for new branch mill, including about 16 looms and auxiliaries. Plant will be given over to production of cotton, rayon, wool and silk woven labels, similar to mill at Marlboro.

National Silk Spinning Co., New Bedford, Mass., may be sold to a group, which plans to operate the plant, as a going concern. The plant has been closed down for more than six months. When operating at full, as many as 2,000 were employed.

Red Springs (N. C.) Weaving Co. has installed 576 new XD Model Draper

Among Mills Which Are Selling Villages

The following is the month's batch of news regarding sale of mill villages to employees:

Arkray and **Myrtle** plants of Textiles, Inc., Gastonia, N. C., will sell their village houses to employees on a long-term payment basis.

Dallas Mfg. Co., Huntsville, Ala., plans to sell its village to employees on a long-term easy payment plan.

Esther Mill Co., Shelby, N. C., has announced that it will sell its village to employees through the mill company and the Shelby Building and Loan Association.

Flint Mfg. Co., Gastonia, N. C., announces that a large number of houses in its village have been bought by employees.

Judson Mills, Greenville, S. C., have sold most of its village houses to employees on long term contracts. The average price for each home was approximately $1,000. All houses were repaired and repainted before being sold.

Laurins (S.C.) **Cotton Mills** have sold most of their village houses to employees on attractive terms under a 10-year FHA amortization plan.

8 to 12 Cut Loads *in one-third less time*

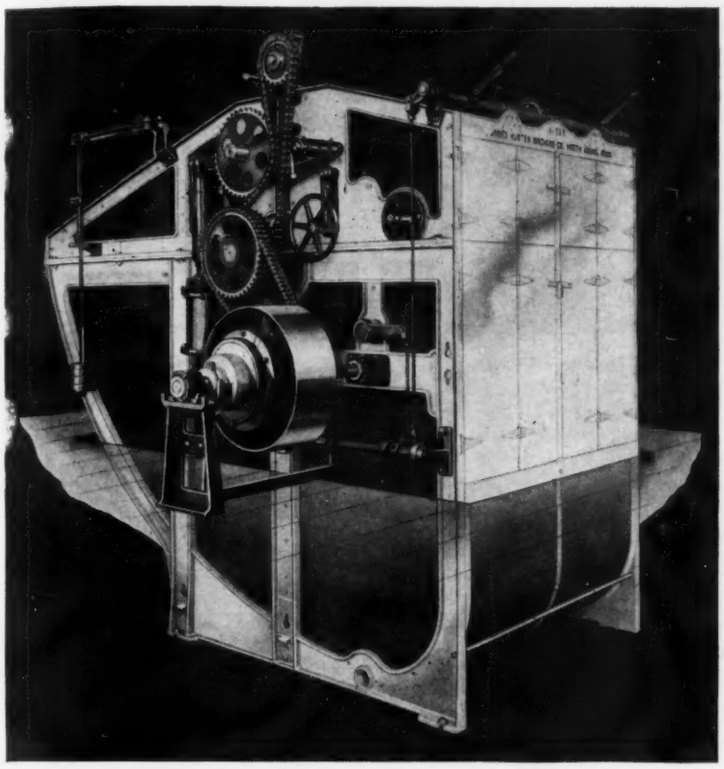

Illustration shows Hunter Stainless Steel Fulling Mill Model No. 26. Hydraulic Top Roll Tension furnished as extra equipment.

JAMES HUNTER MACHINE CO. Hunter NORTH ADAMS, MASS.

THESE facts show why Hunter Stainless Steel Fulling Mills can save on wet finishing costs. Of course they reduce dead loss. Smooth polished surfaces cut flocking. More weight is delivered in cloth. Less goes down the drain. Stainless steel linings, guides, stop motion, crimping boxes and sectional rubber rolls eliminate practically all ordinary repairs plus lost production time due to breakdowns. In addition Hunter Stainless Steel Mills give you twice to four times the capacity. Uniformity is greatly improved and production increased—often to the point where twice the load is delivered in two-thirds or even half the time . . . More facts about this equipment are set forth in a Bulletin on these mills. It will not obligate you to write for a copy. Send for it today.

JAMES HUNTER MACHINE COMPANY

Founded 1847 **NORTH ADAMS, MASSACHUSETTS**

Southern Agent: **Carolina Specialty Co., Charlotte, N. C.**
Western Rep.: **E. G. Paules, 343 Bendix Bldg., 1206 Maple St., Los Angeles, Calif.**

PARAMOUNT Dual Heat Hosiery Finishing Machine

CREATING Incomparable Quality in Hosiery Finishing and Establishing Production Figures that are truly amazing, the Paramount Dual Heat Machine will revolutionize and simplify your hosiery drying and finishing methods.

Compare this Machine with your present equipment. You will find that it requires less square feet of floor space per dozen than any existing method of finishing; less steam consumption — heating is direct; less power — a one-quarter horsepower motor operates the entire machine; less investment per dozen — reasonably priced; less upkeep — built to render years of service; and production possibilities with quality work that cannot be challenged.

Machines will pay for themselves in direct savings to you.

WRITE FOR DESCRIPTIVE BOOKLET

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Paramount Textile Machinery Company

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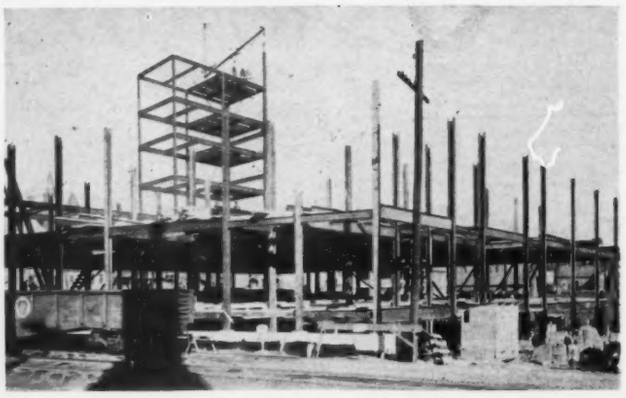

View of the seven-story addition to P. H. Hanes Knitting Co., Winston-Salem, N. C., while under construction last month. J. E. Sirrine & Co., Greenville, S. C., are the engineers and C. M. Guest & Sons, Anderson, S. C., are the general contractors. The building will be used both for manufacturing and storage

looms, and put them into operation early this month. The company constructed an addition which contained 50,000 sq. ft. floor space for this machinery.

Saltex Looms, Inc., Bridgeport, Conn., a Sidney Blumenthal subsidiary, has filed a petition for reorganization under Chapter 10 of U. S. Bankruptcy Act. J. William Hope, Bridgeport, has been named trustee.

Strasburg (Va.) **Silk Mills, Inc.,** of which Lena Gluck is president, has increased maximum authorized capital stock from $35,000 to $75,000.

U. S. Ribbon Mills, Inc., Williamsport, Pa., have been incorporated by Louis L. Brizel, Martin Auslander and David G. Rosenblatt, all of New York City. The new firm will engage in the manufacture of hat bands and ribbon products. Concern has leased the former plant of Mountain Textile Co., 200 East St., closed several months ago.

Knitting Mill News

Appalachian Mills Co., Knoxville, Tenn., has had three trustees appointed pending liquidation of certain obligations against the property.

Athens (Ala.) **College** trustees have authorized a full-fashioned hosiery mill at institution, to be college-owned and operated. Plans are being completed for a one-story building. Cost is estimated about $45,000 and fund has been arranged. Dr. E. R. Naylor, president, Liberal Arts Institute at college, is in charge. Students working way through college will be employed. Product will be sold on contract.

Clark Mill, Jackson, Miss., have had under construction a modern mill building to cost $55,000. The company will manufacture silk hosiery.

Cooper, Wells & Co., Decatur, Ala., is constructing an addition to the knitting department. Five new machines will be installed, replacing older machinery.

Century Knitting Mills, Hillsdale, Mich., owned by Fred Auks, will soon be removed to a new location in Burr Oak, Mich.

Elliott Hosiery Mill, Catawba, N. C., new dye unit has been completed and put into operation.

Ellis Hosiery Mills Co., Hickory, N. C., has completed erection of large one-story addition and will place in service at once for increased capacity.

Fort Schuyler Knitting Co., Utica, N. Y., is installing machinery to produce women's vests, pants and pajamas which are being added to their line next season.

Girardville (Pa.) **Knitting Mills** have filed a voluntary petition in bankruptcy. Maynard Stapleton, Pottsville, Pa., has been appointed referee.

Jackson County Mills, Pascagoula, Miss., have asked bids on general contract for one-story addition to knitting mill. A fund of $75,000 has been arranged for building and equipment. Structure will provide about 50,000 sq. ft. of additional floor space. L. C. Winterton, Pascagoula, is engineer.

Liberty (N. C.) **Hosiery Mills** has installed a Fletcher Whirlwind extractor, sold by F. W. Warrington Co., Charlotte.

Maryon Hosiery Mills, Carrolton, Ga., are constructing a new plant. Builder and

KNITTING CIRCULAR

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It will be a lively spring in the sock market. Lively not only from the pattern and style angle but from the color angle, too. The time-honored staples—flat knits and ribs—are in line to enjoy continued popularity and will be given fresh counter appeal with new colors and pattern effects. In addition, there is in every line—men's, women's and children's—one or more novelties that can be counted on to ring up extra sales. In all three fields, too, there are outstanding items in Links-and-Links hosiery—the sensation of the 1939 market and still young as a business getter. For men there are various new types of the Short Sock, a style that has been moving from West to East and is now a nation-wide favorite. For women and girls the knee-length sock offers new interest and will be promoted enthusiastically by several of the smartest Fifth Avenue fashion houses and at least one of the great class magazines. On this page are shown examples selected from the spring lines of leading manufacturers illustrating types which have market-wide endorsement.

Links-and-Links will be promoted in cotton and lisle in both regulation weights and in new light weight and fine gauge types. Illustration No. 3 is a Links-and-Links Short Sock from Westminster—Nile green with a striking variation of the cable stitch. First at the left in group No. 1 is one of Gordon's "Playmates", the name under which Brown Durrell are promoting anklets in "companion colors" to match-or-mix with sport fabrics. Next to it is a knee length sock for women to be promoted by a leading Fifth Avenue fashion store—also from Brown Durrell. It is shown in natural but comes in pastels and strong sport colors. No. 6 is a new Links-and-Links pattern in a children's anklet made by the Hub Hosiery Company.

Buyers are preparing for a record season with the Short Sock for men. In addition to the Links-and-Links items already mentioned staple knits of socks in this length are appearing. For example, the white sock with smart color-in-color clock and color-beside-color panel wrapping—from Westminster—No. 4. A short sock from Holeproof is illustrated too—the lower sock in No. 5. A regulation length from the same manufacturer, Holeproof's "Pacer" sock with the popular garter top, is shown with it.

Terry cloth—an outstanding favorite of the winter season—appears in new forms in the spring lines, both as body material and trimming. At the bottom in group No. 1 is a child's sock with a checked terry cloth top, another of the Brown Durrell "Playmates". Shown above this is a new idea in the ever popular ribs for girls. It can be worn up the leg or rolled down like a slack sock. Illustration No. 2 shows a pink ribbed terry cloth anklet for women and a baby blue child's anklet with a scalloped top and stripes that resemble embroidery—both from LeRoi Hosiery Company. In addition to all these, Scott & Williams presents a few of its own original patterns, which are illustrated in the panel at the bottom left.

All of the socks shown on this page can be made *economically* on Scott & Williams' machines.

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Established 1865

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RYERSON CERTIFIED STEELS

Large Stocks... Uniform High Quality... Immediate Shipment... Principal products include—Alloy Steels, Tool Steels, Stainless Steel, Hot Rolled Bars, Hoops and Bands, Beams and Heavy Structurals, Channels, Angles, Tees and Zees, Plates, Sheets, Cold Finished Shafting and Screw Stock, Strip Steel, Flat Wire, Boiler Tubes and Fittings, Mechanical Tubing, Rivets, Bolts, Nuts, Washers, etc. Write for Stock List. Joseph T. Ryerson & Son, Inc. Plants at: Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City.

Rinses EASILY AND COMPLETELY
DRUMMOND SOAP

√ Rinses easily and completely.
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√ Gives the softest feel and better handle.
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lessee is C. M. Tanner, of Daytona Beach, Fla. The mill is owned and operated by T. F. Hurst.

Milton (Pa.) **Hosiery Mill** has filed application to increase capital stock from $25,000 to $100,000 to provide funds for expansion.

Nocturne Hosiery Mills will suspend operations at their Union, S. C., plant and concentrate manufacturing at their plants at Rock Hill, S. C., Niota, Tenn., and Greenville N. C. **Custom Dye Works,** which occupied space in the same building in Union S. C., has made no announcement as to its plans.

Shoaf-Sink Hosiery Mill, Lexington, N. C., has erected an addition, 60 x 160 ft., and expanded its finishing department.

Standard Knitting Mills, Knoxville, Tenn., are building an addition for storage at cost of $25,000.

Suffolk Knitting Co., Lowell, Mass., is establishing a new department for fabrics used in sportswear. Company recently renewed lease on local mill property.

Wadesboro (N. C.) **Full-Fashioned Hosiery Mills** were recently organized with $250,000 capital. Plant is equipped with new machinery of modern design and has reached capacity operations. This is part of the Thomas D. Wallner chain.

Wolfsie Sportswear, Inc., The Bronx, N. Y., is being liquidated by Miskoff & Steinberg, Brooklyn, N. Y. Sale includes complete equipment for making a varied line of knitted outerwear.

Processing Plant News

Alamance Dyers, Inc., Graham, N. C., newly organized for dyeing and finishing textiles, has an authorized capital of $25,000. Its incorporators are Harper Barnes, W. F. Okey, and Vera O. Swing, all of Graham.

Burlington (N. C.) **Dyeing & Finishing Co.** is completing construction of a one-story addition, providing large increase in floor space.

Central Processing Corp., New York, has been formed to engage in novelty printing in all its phases. The new company will have plants in New York, New Jersey and Massachusetts. David Shaw, president of the Velveray Corp. of America and Velart Corp., will be president. Other officers are Murray Boxer, of Sterling Textile Printers, Inc., and Edwin L. Donahue of D. & S. Processing Co., vice-presidents; Samuel M. Schwartz, of Hamilton Print Works and Kromite Corp., treasurer; Albert Oelbaum, of Loma Art Textile Co., and Crown Print Works, secretary; and George Megibow, of Try-Us Textile Processing Co., assistant secretary. In addition to the officers, the directors are: Alex Diaman of Carnival Art Corp., Arthur Hanington of Phoenix Novelty Textile Printers and Alex Leviton of International Textile Printing Corp. Michael Cambalist will be in charge of sales and promotion.

Economy Converting Co., Greenville, S. C., has secured a charter to engage in the general converting of cotton goods; capital stock $10,000; officers, H. C. Harper, president and treasurer, and Frank N. Quinn, vice-president and secretary. The latter has been for 11 years with the Keowee Textile Co., Greenville.

Georgia-Kincaid Mills, Griffin, Ga., has started up a new plant for dyeing towel yarn used for manufacture of towels by Georgia-Kincaid Mills, the parent company.

Gregg Dyeing Co., Graniteville, S. C., has let additional contract for a building to house apron conveyor equipment of the new three-story extension to Daniel Construction Co., Anderson, S. C., through J. E. Sirrine & Co., engineers, Greenville, S. C. The new extension is 90 x 165 ft., three stories.

Lanett (Ala.) **Bleachery & Dye Works** has awarded contract for two automatic cloth lifts to E. W. Buschman Co., Cincinnati, Ohio, by the J. E. Sirrine & Co., engineers, Greenville, S. C.

Neversink Dye Works, Reading, Pa., awarded contract to L. H. Focht & Son, Inc., Reading, for construction of 3-story brick and steel addition, 46x89 ft.

O'Rourke Bros., Paterson, N. J., textile printers, in liquidation, were offered at auction last month. Piecemeal lots totaled $6,396, higher than the bulk bid of $5,200. The vice-chancellor authorized the receivers to accept the lot bids.

Rock Hill, S. C.—City Council has authorized a bond issue of $65,000 for extensions and improvements in municipal waterworks plant at mill of Rock Hill Printing & Finishing Co., which will permit the finishing plant to expand.

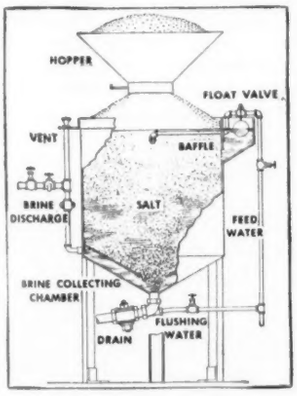
Schlake Dye Works, Chicago, Ill., have let contract to Edwin E. Husak for one-story addition, 52 x 96 ft., for warehouse. Holsman & Holsman, 140 South Dearborn St., are the architects.

The Lixate Process makes 4 major profits just as automatically as it makes brine

★

IT is an actual fact that salt flows in automatically to make brine in The Lixate Process. Just as automatically, profits flow out. You simply can not help making 4 major savings in operating costs with The Lixate Process.

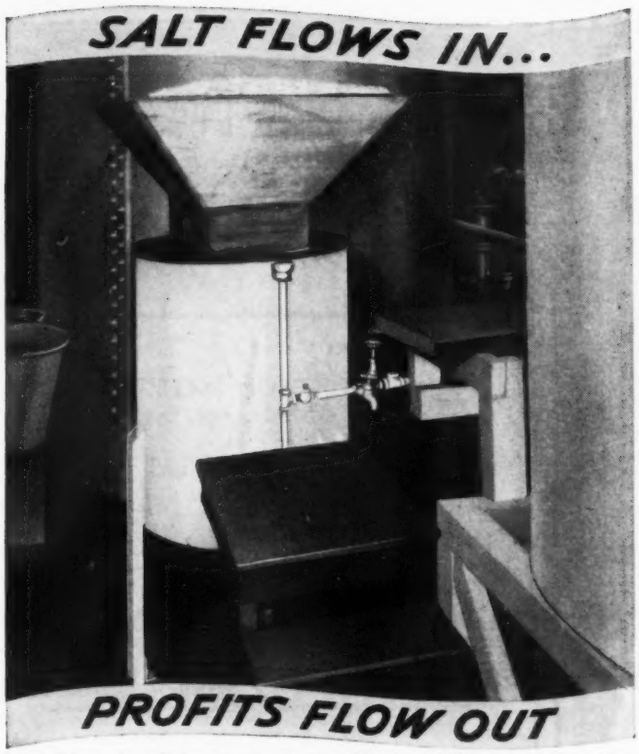
1. You save labor costs for handling salt.
2. You eliminate labor costs for mixing brine.
3. You eliminate or largely reduce labor costs for distributing brine.
4. You save salt—users estimate savings of 10% to 20% due to elimination of salt waste.



This cross section diagram shows why savings are automatic. You make important savings in salt handling costs because salt is handled only once—when it is placed in a hopper above the Lixator. In many plants, a storage room or bin above the Lixator is equipped with a hopper bottom. Entire carloads of Retsof, Detroit, or Avery brands of Rock Salt can be stored, direct from the railway car, and never handled again.

Automatic control

Water enters under automatic control, through a spray nozzle at the top. As the water flows downward it dissolves the salt without agitation and becomes fully saturated brine. The brine is then self-filtered to be crystal clear, rises in a collecting chamber to a discharge pipe, and flows by gravity to a storage tank. You not only get rid of all the muss and bother—but also eliminate all labor and power costs for making brine by other methods.



This Lixate installation in the Oneita Knitting Mills, Inc., Utica, N.Y. —is representative of many in the textile field. Lixate Brine is used for a wide variety of purposes and has supplanted the use of Glauber's Salt in many operations, for more level dyeing, and for a more efficient exhausting of the dye from the bath. Lixate Brine is also used in salting out dyes, for regenerating zeolite water softeners, and in many wet processing operations.

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Brine is always uniform, for it is always fully saturated—but it can be easily and quickly diluted to any desired degree by simple gauge markings in the storage tank. Brine can be piped by gravity—or pumped when necessary—to any part of the plant. This cuts out the nuisance of carrying or trucking salt or brine to many different points of the plant and eliminates all labor cost for brine distribution. You save salt because automatic operation eliminates waste.

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The Lixate Book, sent free on request, explains The Lixate Process in detail. In addition, it contains pictures of many installations in a long list of industries. If you prefer, a Lixate Engineer will call and show you how you can improve quality and at the same time lower costs in your own operations.

SALT—SALT BRINE—AND HOW TO USE THEM

The Lixate Process For Making Brine is a development of The Research Department of International Salt Company, Inc. International produces every type and grade of salt for every use in industry, agriculture and the home. Sound, authoritative advice on proper uses of salt and salt brine is given to all users of salt without obligation. You are invited to submit any salt problem.

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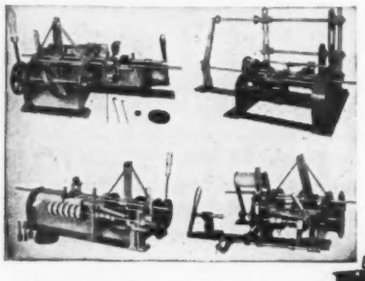

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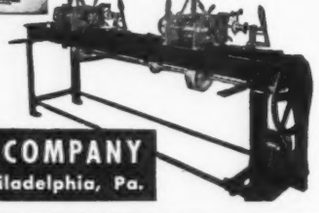
MULTIPLE HEAD

We manufacture twenty styles of spooling machines for as many material combinations.



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For
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MONTGOMERY
WINDSOR LOCKS, CONN.
Designers and Spinners of Novelty Yarns

FREE FOR THE ASKING

(*Concluded from page 86*)

Spooling Machines. Fidelity Machine Co. Booklet gives condensed data on spooling machines for handling a variety of fibers, cellophane, wire, etc.; included are photographs of many types, and data concerning dimensions, weights, and other factors.

Variable-Speed Transmission. Columbia Vari-Speed Co. Leaflet describes company's JFS-Jr. control for mechanically varying speed by means of adjustable pulleys; included are use-photographs, and dimension diagrams.

Dyestuffs. National Aniline & Chemical Co., Inc. December, 1939, issue of "Dyestuffs" contains, in addition to other technical material, fourteen pages of data reprinted from TEXTILE WORLD; subjects discussed include finishing yarn-dyed fabrics, the third stage of synthetics, and leveling tendencies in wool piece-dyeing.

Chairs. Dumore Chair Co., Inc. Booklet titled "Proper Seating—An Aid to Industrial Efficiency" gives information on the necessity for having proper seating arrangements for each type of work.

Electrical Apparatus. Westinghouse Electric & Mfg. Co. 59-page catalog, No. 30-000, describes switches, circuit breakers, and other equipment for use in motor or lighting circuits; contains tips on mounting and connecting apparatus, and numerous illustrations, circuit diagrams, and tables.

Trucks and Boxes. Fibre Specialty Mfg. Co. 16-page booklet describes company's line of fiber trucks, roving cans, barrels, and boxes of various types; included are photographs of each type, and dimension data.

Electric Motors. Century Electric Co. Repulsion-start induction, single-phase motors are pictured and described in catalog 938 A, which also contains cut-away illustration showing construction.

Floor Resurfacer. Flexrock Co. 4-page leaflet describes company's equipment for resurfacing floors, and contains photographs of floors so treated as well as a list of representative users.

Pipes and Fittings. National Carbon Co., Inc. Pamphlet describes and pictures, in eight pages, company's carbon and graphite corrosion resistant pipe and fittings, known as "Karbate"; included are tables showing resistance to a number of reagents.

Fire Extinguishing. Walter Kidde & Co. 8-page bulletin describes company's carbon dioxide fire extinguishers, with particular reference to their use in connection with fires of flammable liquids and electrical equipment.

Numbering Machines. American Numbering Machine Co. 12-page pamphlet contains illustrations and descriptions of a variety of numbering machines especially adapted to textile-mill use.

Ventilating Equipment. DeBothezat Ventilating Equipment Division, American Machine and Metals, Inc. Catalog contains 26 pages of illustrations and data on company's axial-flow ventilating fans; another bulletin describes company's Bifurcator ventilating equipment designed for conveying corrosive, high-temperature, and hazardous fumes or gases.

Suction Condenser. Proctor & Schwartz, Inc. Bulletin No. 88 contains photographs, description, and typical application diagrams showing use of its ceiling-suspension type suction condenser for attachment to pickers, willows, or other fiber opening and cleaning machinery.

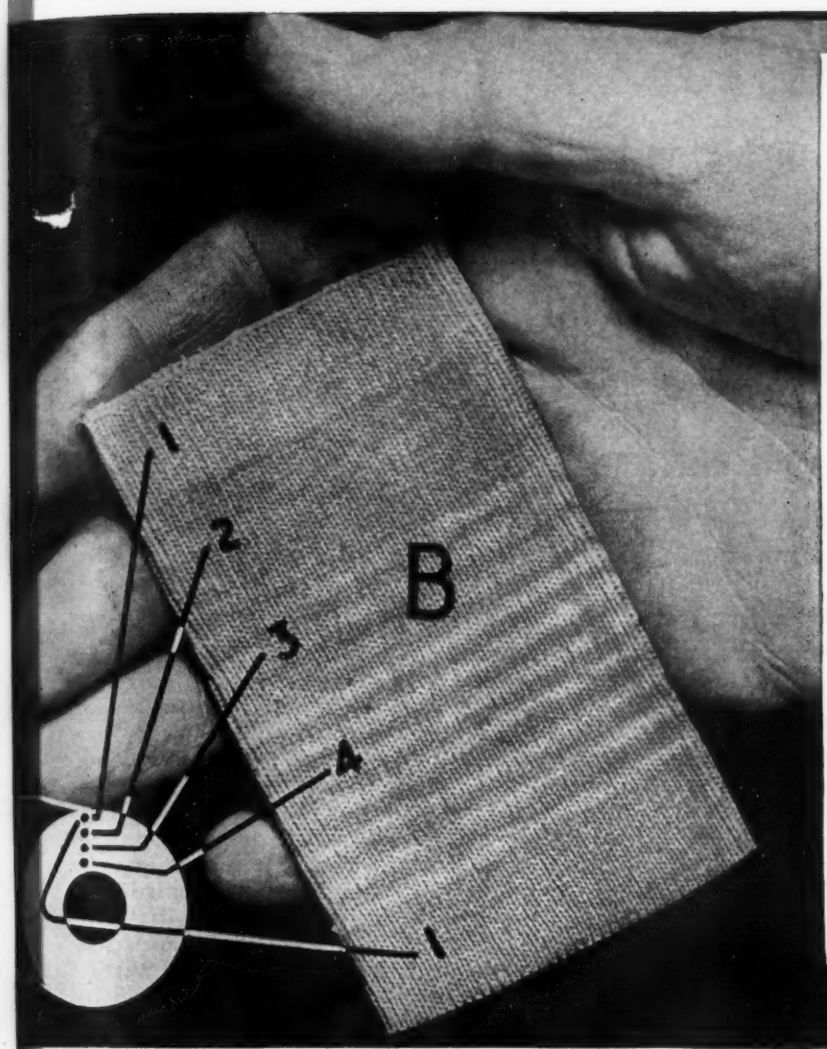
Thermometers. C. J. Tagliabue Mfg. Co. Two recently issued catalogs are No. 1125C, describing the company's line of industrial thermometers; and No. 1100 B, describing a line of laboratory etched-stem thermometers and hydrometers.

Motor Lubrication. U. S. Electrical Motors, Inc. Folder describes company's "Lubriflush" system of lubricating motors; included are diagrams showing methods by which devitalized lubricant and sludge are removed.

Alloy Tubes and Pipes. Babcock & Wilcox Co. Bulletin No. 12-A gives technical data on high-temperature steel and information on company's seamless alloy tubes and pipes for high-pressure and high-temperature services. Another bulletin describes, in 32 pages, water-cooled furnaces, with illustrations of their construction and typical applications.

Unit Heater. Herman Nelson Co. Leaflet describes, pictures, and gives engineering data on company's unit heaters for use in commercial and industrial buildings.

Chemicals. E. M. Sergeant Pulp & Chemical Co. Pamphlet lists large number of industrial chemicals and raw materials supplied by this company, and gives data on strengths available, put-ups, etc.



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The Calcoloid Pigment Method makes it possible to produce level packages without cross-overs on packages as coarse as 12 ply.

OTHER ADVANTAGES INCLUDE:

Simplified procedure

Complete penetration—more level dyeing

Full Color value from dyestuffs

More certain and uniform shade matching

Maximum fastness to washing and crocking

Requires no modification of standard types of circulating dyeing equipment

*Calcoloids are patented. Patents are pending covering the Calcoloid Pigment Dyeing Method.

This is more than a new type of dye. It is a notably improved and substantially simplified method of vat dyeing raw stock or cotton yarn in circulating types of equipment.

Several important mills have cooperated with us for more than a year—confirming our own laboratory tests by full scale use of this new Calcoloid Pigment Method.

The results have been so outstandingly successful we are confident that no raw stock or cotton yarn dyer can afford to delay learning its advantages at first hand in his own plant.

To interested mill and finishing plant executives we will gladly send Technical Bulletin No. 550, outlining the development of this new method, and explaining its advantages in full. Please write on your firm's letterhead to Calco Chemical Division, Bound Brook, N. J.

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H. G. LORD Comments on

Rayon

The keynote of this Annual Review Number of TEXTILE WORLD is "The Next Decade in Textiles."

I admire the courage and vision of editors who dare forecast the development of an industry which is likely to make more revolutionary progress in the next ten years than it has in the last fifty years.

Take rayon, for example: TEXTILE WORLD has chronicled the progress of rayon almost from the time that Count Chardonnet showed the world that it was possible to manufacture a silk-like fiber from a cellulose solution. That was in 1884 and, beginning in 1888, there were occasional references in TEXTILE WORLD about the development of the synthetic industry abroad.

It was in 1911 that the viscose process was established in this country and "Rayon" became a real factor as a textile fiber. But a vital question was the problem of developing a technique of handling in the textile mills. Its future depended not only upon overcoming early defects in the fiber, but upon the success of textile mills in converting it into twisted, woven, knitted, and braided fabrics.

Rayon arrived in a textile world that was equipped with the technique to process cotton, wool and silk, but naturally the mill men had not the experience and equipment to process successfully a delicate material of the unique characteristics which the new fiber possessed.

A vast amount of pioneer work had to be done by some one to make the new fiber economically workable and commercially profitable in fabrics that go out to the world in volume yardage. Without this pioneer work, rayon could have made no substantial progress.

The magnitude of the task of developing a rayon technique called for the best efforts of the rayon producers, the concerns building textile machinery and the mills handling rayon. As the world's leading textile publication, TEXTILE WORLD took the leading part in supplying inspiration to other divisions of the industry and solved many of the problems that arose. It published a vast amount of material on the subject of processing rayon. It sought experts in various lines using rayon and commissioned them to record their experience. In its Questions and Answers Department it answered hundreds of questions from perplexed textile manufacturers. Its Annual Rayon Statistical Issues have for many years been the highest authority for rayon history and factual information.

Rayon has been raised from the possibility of a magnificent failure in the event that it had not been made adaptable for textile uses, into one of the wonder developments of the age. In 1929, TEXTILE WORLD received the Medal of the Associated Business Papers, the highest possible award, for its contribution toward the expansion and success of the rayon industry.

And now comes Nylon. Seldom has a new product captured the imagination of the public as has Nylon. It seems to typify the triumph of research and invention. It came into being not as an unexpected discovery, but as a reward of carefully planned experiments by a great organization, to produce synthetically, molecular structures which had existed only in certain natural materials and which gave to the resulting products definite desired qualities.

What changes will these man-made fibers make in the industry during the coming decade? That they will be marvellous may safely be predicted—*and* TEXTILE WORLD *will tell the story.*

H. G. LORD, *founder of* TEXTILE WORLD *in 1888 and president, Bragdon, Lord & Nagle Division, McGraw-Hill Publishing Co.*